FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

MARCH, 1951

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Not an Atomic Blast — Just a Truckload of Oxygen and Acetylene Cylinders Involved by Fire (Details Elsewhere in This Issue)

A CASE-SHEPPERD-MANN PUBLICATION

For COMMON BREATHING ACCIDENTS and for CIVILIAN DEFENSE

is Your Community protected

by the MOST EFFECTIVE Resuscitation apparatus known to science?

EMERSON RESUSCITATORS

SIMPLE to operate, with no complicated adjustments.

SAFE for adults, children, or infants. There is no record of lung injury from the pressures used in thousands of cases in more than ten years.

EFFECTIVE. The suction phase, alternating with the positive phase, helps circulation and can be of life-and-death importance, especially to victims in shock.

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Medical Reference on Resuscitation

Information and Demonstration

Bulletin on a New Manual Method of Artificial Respiration

J. H. EMERSON CO.

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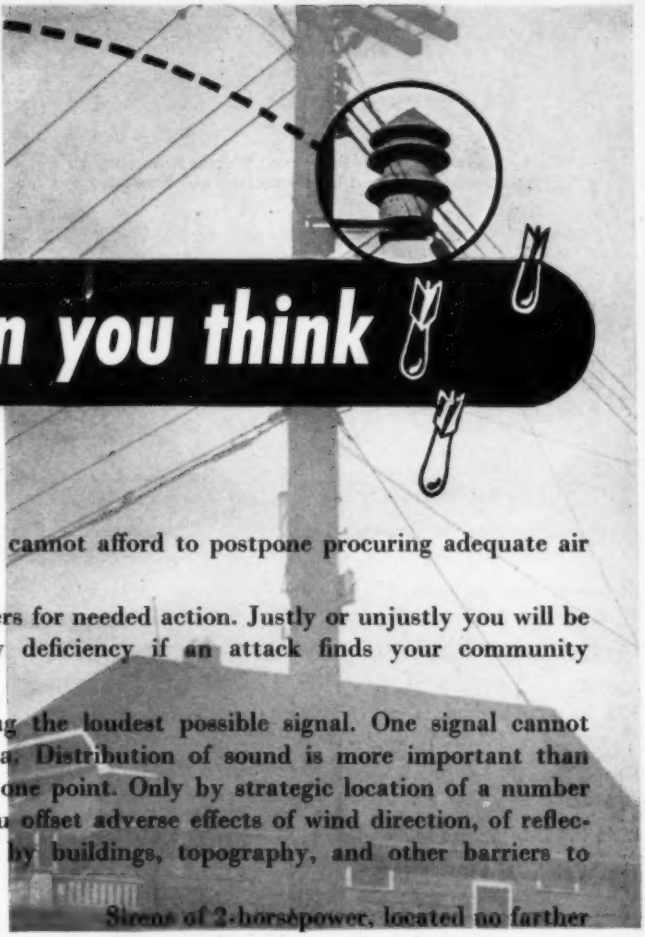
It's LATER than you think



late enough so that you cannot afford to postpone procuring adequate air raid warning signals.

People look to their leaders for needed action. Justly or unjustly you will be held responsible for any deficiency if an attack finds your community unprepared.

Don't waste time seeking the loudest possible signal. One signal cannot blanket an extended area. Distribution of sound is more important than excessive volume at any one point. Only by strategic location of a number of smaller signals can you offset adverse effects of wind direction, of reflection or blocking caused by buildings, topography, and other barriers to sound travel.

Sirens of 2-horsepower, located no farther than a mile apart produced those systems pronounced most effective in World War II. Federal 2-hp. sirens are economical in first cost, require no maintenance, and weighing but 65 pounds, can be installed with a minimum of material and labor.

Save **TIME!**
Save **MONEY!**
Save **LIVES!**

Write for Air Raid Siren literature today

FEDERAL ENTERPRISES, Inc.

FORMERLY: FEDERAL ELECTRIC COMPANY, INC.

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

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FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

A HEAVY RESPONSIBILITY

DAILY the drive for greater defense production intensifies. Daily, stockpiling of critical materials becomes more serious. Daily, steel, rubber and other necessities grow more precious in the nation's defense economy.

● Daily — nay — hourly, consuming, destructive fire is the greatest single threat to this defense effort, this economy.

● All that stands between the total destruction of this production, this stockpiling of vital reserves and resources, by fire is—*the nation's fire service.*

● If there ever was a time when this service should be brought up to, and maintained at peak efficiency, it is *now!* This is no time for those responsible for administering this service to skimp on the facilities it must have to hold the line and win the fight against fire.

● It is not only more important than ever before that the fire service be kept informed of the latest developments in fire control and extinguishing methods and techniques, and of the facilities—the tools and equipment so essential to these techniques, but that it know *where to procure them.*

● Here is one reason why today and tomorrow FIRE ENGINEERING is *'must reading'* for the nation's fire fighters. Their responsibilities are greater than ever. FIRE ENGINEERING helps them better to accept and measure up to those responsibilities.

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Wastes Engineering*, etc. ¶Subscription price: U. S., Latin America and Canada, $3.00 a year; Foreign, $4.00; Single copies, 35c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 5, 1879. ¶Contents of this issue copyrighted, 1951, by Case-Shepperd-Mann Publishing Corp. President and Advertising Director, KARL M. MANN; Vice-President and General Manager, I. HERBERT CASE; Secretary and Editorial Director, FRED SHEPPERD; Assistant Advertising Director, WALTER H. FREDRICKS; Eastern Representatives, WILLIAM J. GIBSON, ALFRED J. HOUGHTON; Circulation Manager, W. H. TOPHAM. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 8 So. Dearborn St., Chicago 3, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; Los ANGELES: AUGUST HAURIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U.S.A.

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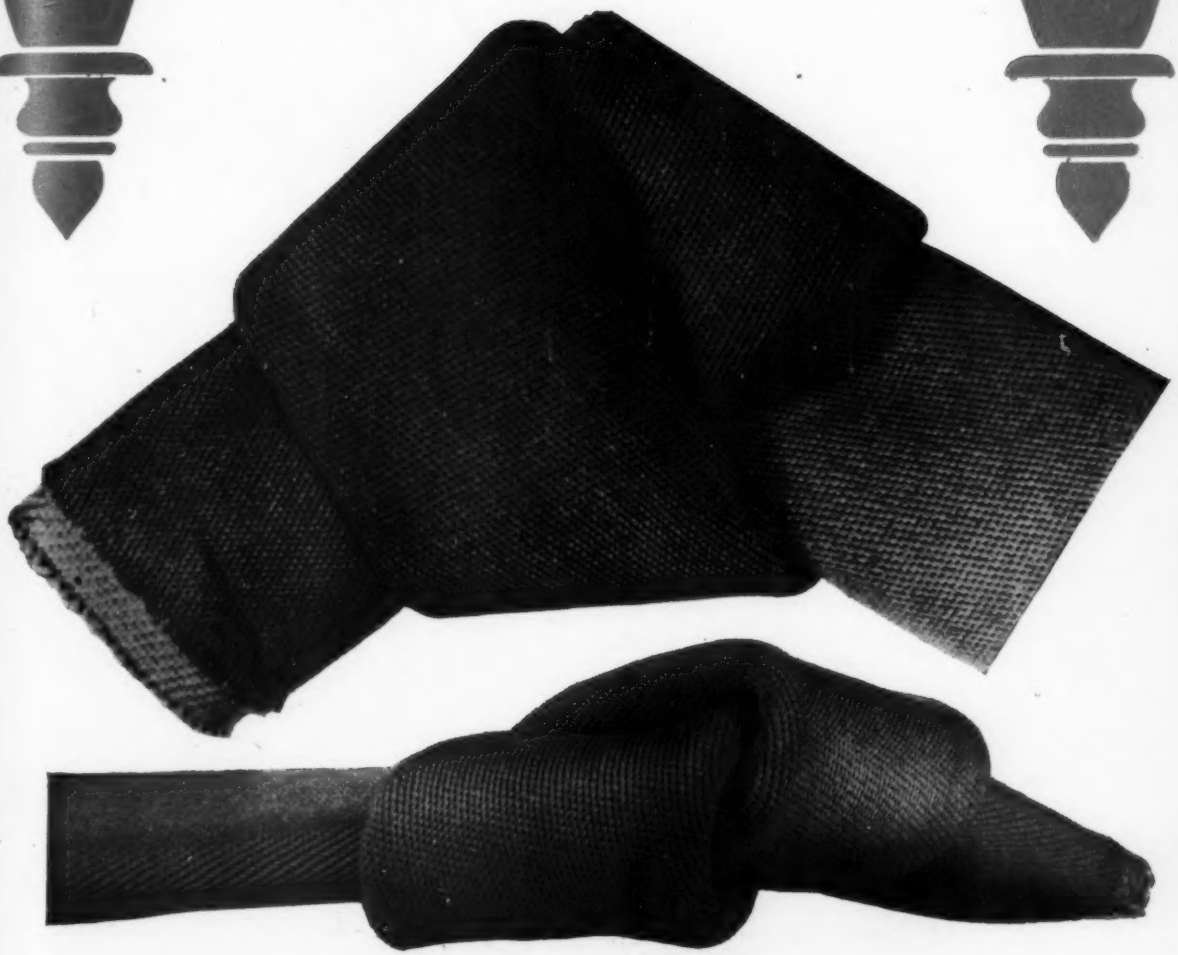
"Specialized Leadership"

FLEXIBILITY



• KEYSTONE •

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FABRIC FIRE HOSE CO.

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It will help if you mention FIRE ENGINEERING *when writing advertisers*

STRENGTHEN

It's good fire protection practice to be prepared for *maximum* emergencies. That's why more and stronger fire-defense weapons are necessary *now* — *before* the severe service that may come.

Without delay, *your* apparatus and equipment should be measured against the hazards you may face. Have your pumpers the power and stamina to deliver full capacity for long periods of time? Have you plenty of hose-carrying and booster or tanker capacity? Modern ladder trucks — particularly aerial, for ladder-pipe work on upper stories?

Now is the time to make sure of your strength. You'll find your Mack representative ready and able to help. For he can show you the latest in fire-fighting engineering — modern yet proved features in use in leading departments. And he can show you how only first-line apparatus like Macks are *big* enough, *strong* enough, *powerful* enough to depend on for your fire-front defenses.

YOUR FIRE DEFENSES NOW!

Modernize with

Mack
FIRE APPARATUS

MACK MANUFACTURING CORPORATION
Fire Apparatus Division
Long Island City 1, New York

Factory branches and distributors for service and parts in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

ANOTHER MACK FOR COLUMBIA, S. C. This Type 85, 750 gpm pumper makes the 7th Mack put into service by South Carolina's capital city — and another Mack 85 is on order.

TRIPLE COMBINATION PUMPERS — 500 TO 1900 GALLONS . . . SQUAD AND HOSE CARS . . . AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

New B.F.Goodrich Fire King fire hose 50% stronger, 12% lighter

Stands higher pressures—tested to 600 pounds

FOR years engineers have been searching for a stronger, lighter fire hose cord. A new chemically-produced fiber has now been designed—especially for fire hose. Not affected in any way by moisture, mildew, mild acids or alkalies. Used in new Fire King hose as the cords that go *around* the hose and carry the load under pressure.

Stands higher pressures—In actual laboratory tests, Fire King hose—with the new cord—was found to be 50% stronger than standard hose. Every length of Fire King fire hose is tested to 600 pounds pressure.

Lighter, more flexible—Fire King cord is lighter, more flexible than ordinary fire hose cord, making hose easier to handle and coil in a small diameter. New Fire King hose is 12 to 15% lighter than standard B. F. Goodrich fire hose tested to *400 pounds pressure.*

End protection—Fire King (2½″ size only) has the exclusive patented B. F. Goodrich end protection—an extra ply of hard woven cords extending 12″ from the coupling. Adds 100% more strength to coupling area. Not one single length of B. F. Goodrich fire hose with end protection has ever failed in the coupling area.

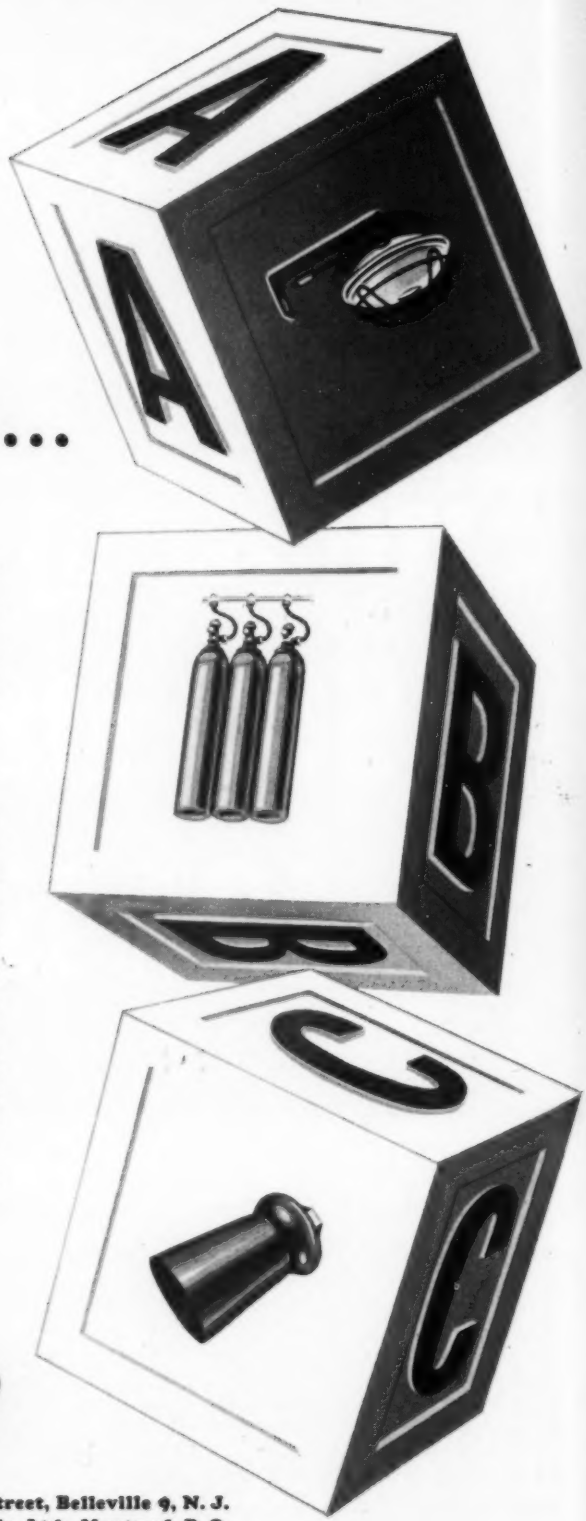
Fire King is available with or without Hydroseal treatment. It's a double jacket hose, available in 1½″ and 2½″ sizes.

Fire King combines all the features of the highest grade B. F. Goodrich fire hose with a brand new feature—Fire King reinforcing cord. The result is a premium fire hose 50% stronger, 12 to 15% lighter, yet only slightly higher in cost.

Departments looking for ways to lower hose costs by getting hose that lasts longer should write for the name of nearest BFG Fire Hose Distributor. *The B. F. Goodrich Company, Industrial & General Products Division, Akron, Ohio.*

Fire Hose
BY
B.F.Goodrich

CONTROLLING FIRE IS AS SIMPLE AS...



A —*Kidde Fire Detector*

When you've got an automatic Kidde built-in fire extinguishing system, fire detectors stand guard in every space to be protected. When heat from a fire hits a detector, it quickly sends a signal back to—

B —*Kidde CO_2 Cylinders*

A bank of Kidde cylinders containing Carbon Dioxide (CO_2) which is a colorless odorless gas that won't damage anything but fire. When a fire occurs the CO_2, which is under high pressure, instantly rushes out of the cylinders, through pipes to—

C —*Kidde Multi-jet Nozzles*

The Kidde multi-jet nozzles pour out the CO_2 into the protected space or spaces in tremendous volume. The carbon dioxide displaces the oxygen—and without oxygen the fire dies.

Kidde engineers will be glad to work with you on any fire prevention problem.

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SEAGRAVE SAFETY-STEEL AERIAL LADDERS

THE FIRST CHOICE OF AMERICAN FIRE DEPARTMENTS

The dependability of the Seagrave Aerial Ladder is best demonstrated by the fact that hundreds of cities again and again specify Seagrave. More than 400 Seagrave Aerials are now in use.

It has been definitely proven, throughout the years, that the Seagrave is the strongest aerial ladder ever produced . . . that its all alloy steel, welded construction is the safest . . . that its operation is the simplest, the smoothest and the most dependable.

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Seagrave
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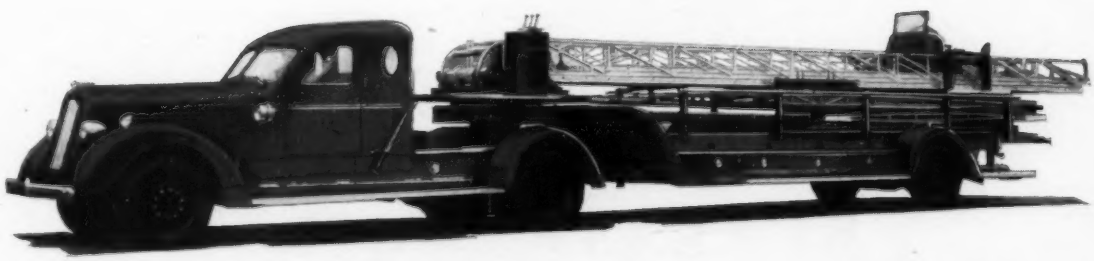
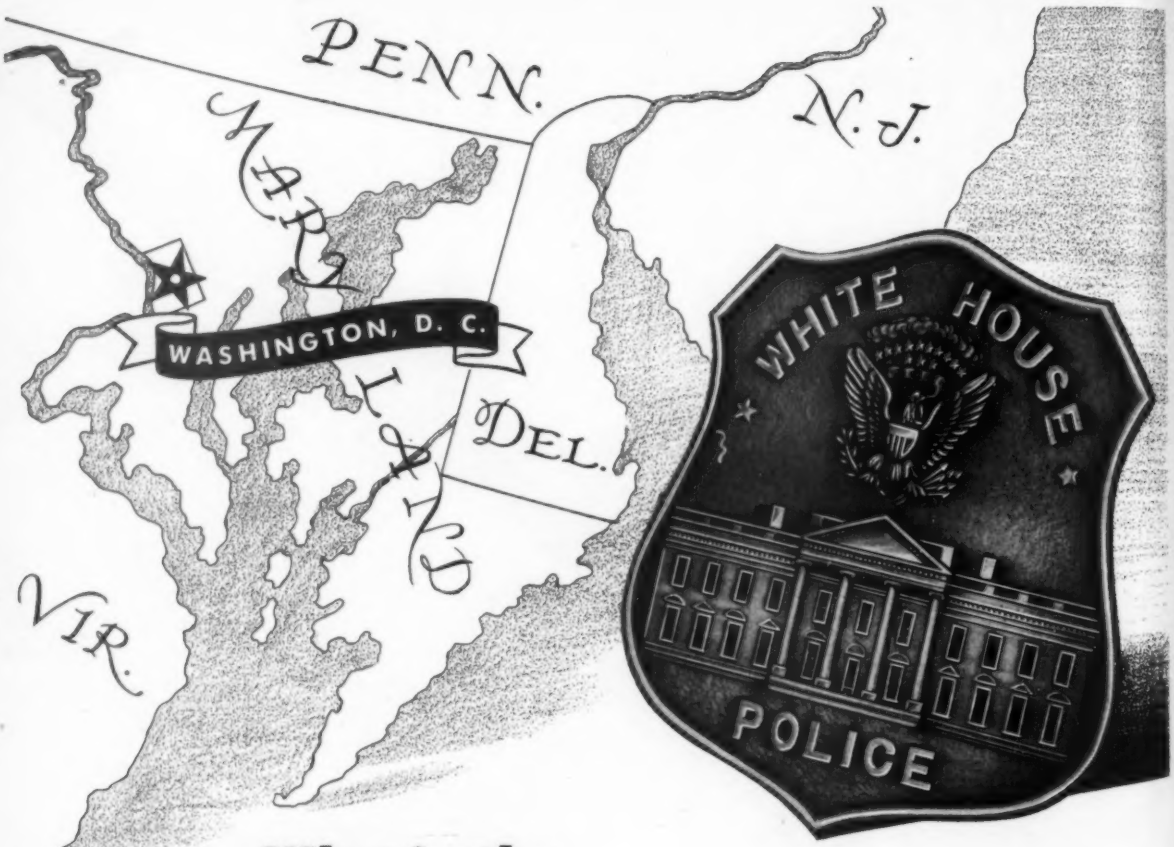


THE GREATEST NAME IN FIRE APPARATUS



Why is the White House, white?

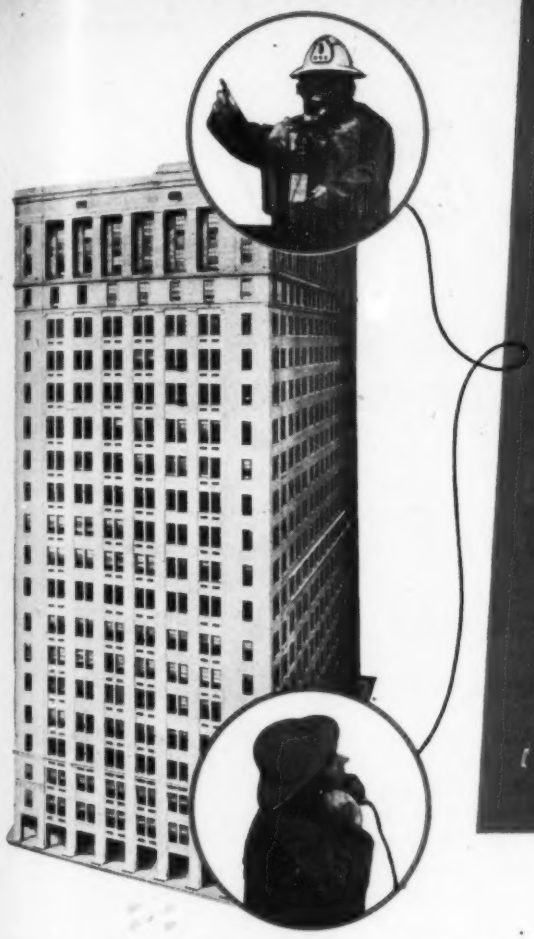
The term "White House" did not become official until Theodore Roosevelt's administration, although it had long been in popular use. When the British burned the "president's palace" (as it was called) during the war of 1812, only the gray sandstone walls were left standing. It was later rebuilt and the walls painted white to cover the ugly smoke stains. History tells us this is why the president's mansion is now called the White House.

Protecting our nation's president and his family is a responsibility requiring the utmost loyalty and honesty. You can well imagine that the White House Police are all hand-picked men... sure enough, they're wearing BLACKINTON BADGES.

Always remember to specify BLACKINTON for the best in badges. Ask your dealer to show you the complete line of BLACKINTON BADGES the next time he calls.

BLACKINTON

V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.



THE NEW M·S·A

MASKFONE

SPANNED THIS GAP

In Fighting Pittsburgh's Bell Telephone Building Fire!

WORLD WIDE PHOTO

When fire broke out in the penthouse of the Bell Telephone Company building in Pittsburgh, 21 floors above the street, elevator service was knocked out immediately. Dense smoke made masks necessary. The stage was set for one of those all-too-frequent situations where communications are difficult—transmittal of orders is slowed and hampered—and the efficiency of fire fighting operations is threatened.

But Pittsburgh's Fire Department was ready—and remained complete master of the situation. Fire Chief William Davis, working right at the scene of the blaze, used a Chemox Mask equipped with an M. S. A. Maskfone. The reel mounted neoprene-covered cable, dropped to street level, connected with the handset used by his assistant. Orders for hose . . . for additional tarpaulins to cover equipment on the floors below and reduce water damage . . . for every move in the complex fire-fighting operation, were transmitted instantly and understandably, carried out without a hitch. Priceless minutes so vital in fighting fires were saved.

The M.S.A. Maskfone, completely self-contained and easily attached to gas mask, or oxygen-breathing apparatus equipped with an M.S.A. All-Vision facepiece with Cleartone Speaking Diaphragm, permits sound-powered communications between mask wearers over distances of a mile or more. It is an almost indispensable aid to effective command today. It *is* indispensable equipment for departments that are preparing for anticipated national defense emergencies. For full details, ask for bulletin No. B-21. A demonstration will be arranged, if desired; just contact your M.S.A. representative.

Call the M. S. A. man on your every safety problem . . . his job is to help you.

MINE SAFETY APPLIANCES CO.

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PITTSBURGH 8, PA.

At Your Service
54 Branch Offices in the United States and Canada

MSA
SAFETY EQUIPMENT HEADQUARTERS

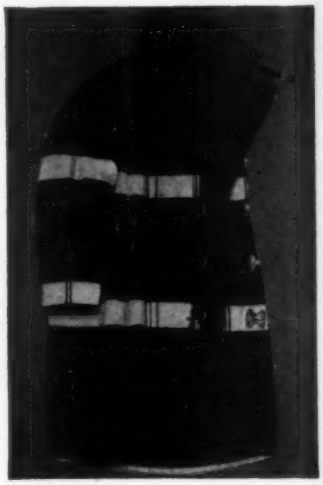
Friend of the Firefighter!

MIDWESTERN
PROTECTIVE CLOTHING

THE Original

Mackinaw Striped Safety Coat

Reduces Accidents — Saves Lives



Several years ago, Midwestern developed the *original* striped safety coat. The highly visible stripes are moulded to and vulcanized as part of the material. Thousands of Midwestern Safety Coats are serving fire departments throughout the world. Service records prove that these garments not only offer high safety visibility, but have the qualities required to withstand the rough usage required in your hazardous work of protecting life and property against fire.

All Midwestern Safety Coats have the moulded-in yellow stripes which are a part of the garment and not painted and sewed on. The *original* Midwestern Safety Coat will give you trouble-free protection and dependable service.

· PROTECTION
· COMFORT
· SERVICE

Largely through superior quality, design, fabric texture and advanced features, Midwestern is a leader in the field of firemen's clothing. All Midwestern specialized protective clothing have been developed from long years of experience . . . and each detail of design adds to the service, comfort, convenience and long wear of the garment.

Regardless of climate and performance demanded, you will find a fabric to exactly suit your needs in our vast selection of crude rubber and fabric materials. The softness and flexibility of the high-grade materials used is your assurance of long service and real protection. For full information on our complete line, see your Midwestern dealer. A letter to the factory will also bring you material samples for your inspection.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN MFG. CO., Mackinaw, Illinois
Manufacturers of the Famous **MACKINAW Coats**

Prepare Now

for community defense with

John BEAN HIGH-PRESSURE FOG FIRE FIGHTERS

NOW THAT air attack is more than a possibility, fire protection is a necessity for your community!

That means bringing your department up to full strength by replacing obsolete apparatus with modern, dependable equipment. It also means advising manufacturers on how to protect their industries in case of air attack.

John Bean High-Pressure Fog Fire Fighters are equally effective for local fire departments or manufacturers because of these five important fire-fighting exclusives:

Carry their own water supply! Entirely independent of municipal water system in case of air attack! Go into action faster, too, because no time is wasted laying hose!

Put fires out faster! Bean High-Pressure Fog absorbs heat instantaneously! Better than 10 to 1!

Clear way for close-up work! Fog clears way through smoke and flames for a faster, safer entrance!

Minimize water damage! Fog quickly turns into steam, causing little or no water damage!

Require less personnel! Handling of hose lines and clean-up work minimized. Increases effectiveness of any department!

Write today for complete information on how you can give your community effective civil defense with John Bean High-Pressure Fog Fire Fighters.

BAY CITY, MICHIGAN, started its civil defense program recently by purchasing this John Bean High-Pressure unit. Carries its own water supply—provides two guns of 30 gallons each—850 pounds pump pressure. Delivered complete with all accessories.

BEAN *Original* HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY AND CHEMICAL CORPORATION

JOHN BEAN DIVISION, DEPT. 126, LANSING 4, MICH. • JOHN BEAN DIVISION (WESTERN), 409 JULIAN ST., SAN JOSE, CALIF.

BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

WHEN AN ASPHYXIATION EMERGENCY CALL TURNS OUT TO BE A NEWBORN INFANT OR VERY YOUNG CHILD

BE PREPARED WITH E & J

the resuscitator leading hospitals throughout the world use regularly in their maternity departments

E & J RESUSCITATOR • ASPIRATOR • INHALATOR

With the E&J Portable Model illustrated you can provide hospital-quality resuscitation anywhere, for it has exactly the same precise and reliable mechanism as the famed E&J hospital models. It is approved by the American Medical Association.

Write *now* to E & J for the whole story of E & J Resuscitator features and functions; or better still, request a free demonstration right in your Department so you can examine and operate the E & J yourself.

Asphyxia of newborn infants or very young children is often complicated by tiny or partially obstructed air passages that greatly restrict flow of oxygen to the lungs and the exhalation of breath. Several major features of the E&J Resuscitator combine to overcome this condition and maintain necessary lung ventilation.

DON'T BE WITHOUT THESE VITAL ADVANTAGES WHEN TREATING SUCH CASES

With the E&J PRECISION FLOW CONTROL the operator can regulate the *flow* of oxygen to the exact amount the partially restricted air passages will accommodate. Because E&J POSITIVE AND NEGATIVE PRESSURES provide mechanical *exhalation* as well as inhalation, there is no dependence on elasticity of the tiny lungs to move used gases past the partial obstruction sufficiently to produce effective exhalation.

E&J PRESSURES ARE FACTORY-SEALED at positive and negative limits proven absolutely safe and highly efficient for use on *any* patient. For this reason there is never any question about proper pressure settings and never any need to resort to reduced pressures at which respiratory efficiency decreases rapidly. *With an E&J, an infant is resuscitated just as efficiently as an adult.*

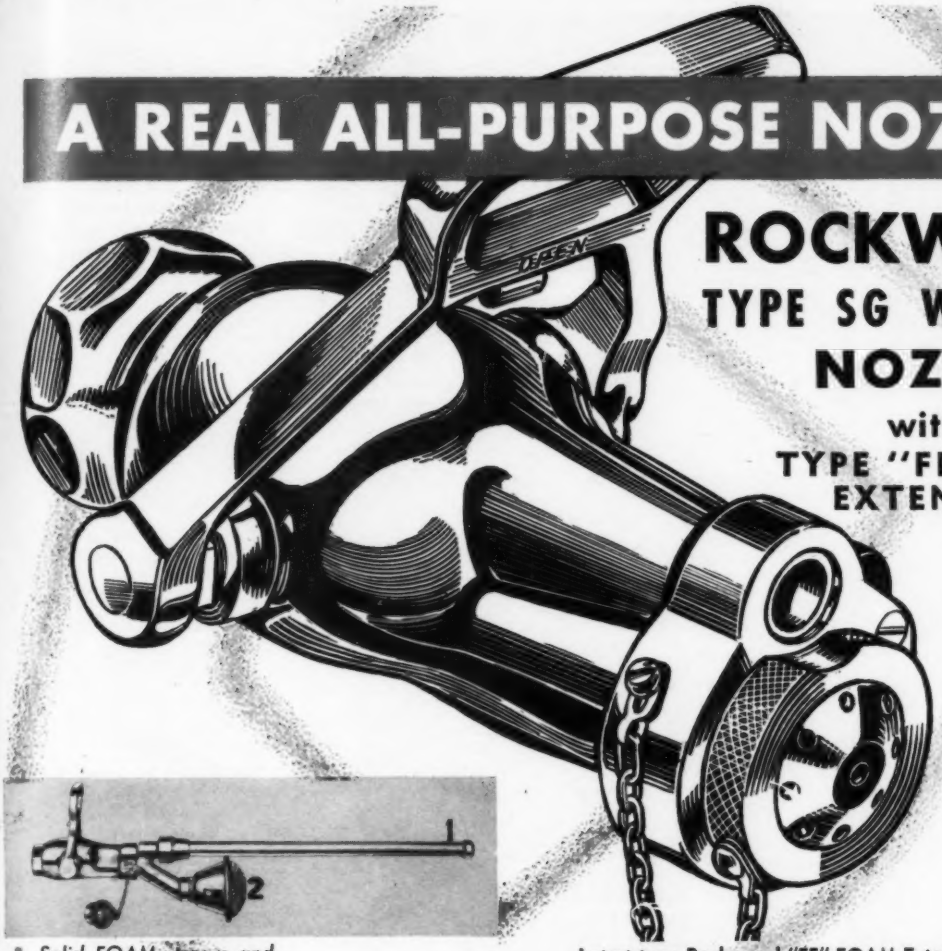
These E&J advantages are only a few of the many reasons why E&J Resuscitators are consistently selected for use by most leading hospitals and by the outstanding rescue squads of fire and police departments, industrial plants, mines and First Aid Services.

E&J

E & J MANUFACTURING CO.

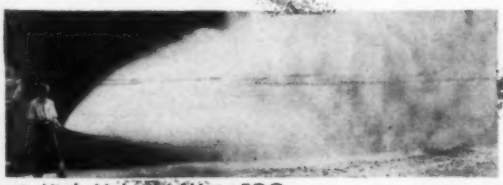
Glendale 1, California

A REAL ALL-PURPOSE NOZZLE!



ROCKWOOD TYPE SG WaterFOG NOZZLE with TYPE "FF" FOAM EXTENSION

1 *Solid FOAM stream and*
2 *FogFOAM from "FF" FOAM extension inserted in type SG WaterFOG Nozzle.*



3 *High Velocity WaterFOG.*

4 *Straight water stream.*

5 *Low Velocity WaterFOG from extension applicator.*

Latest type Rockwood "FF" FOAM Extension unit makes possible *5 different kinds of discharge* from only one type SG WaterFOG Nozzle — (1) solid FOAM stream (2) FogFOAM (3) high velocity WaterFOG (4) solid water stream (5) low velocity WaterFOG.

This new type "FF" FOAM extension combined with our type SG WaterFOG Nozzle will handle any type of fire in ordinary combustibles, flammable liquids or materials that can be extinguished with water alone or water mixed with FOAM Liquid. These "FF" extension units are available for use with Rockwood Nozzles on ¾", 1" or 1½" fire hose lines.

Rockwood FOAM Liquid can be automatically mixed with water supplied to the new "FF" extension by means of the Rockwood hose line FOAM eductor (with SG-60 Nozzle), or the latest type Rockwood FOAM proportioning systems built into fire trucks (with type SG-47, SG-48, SG-60 Nozzles). Write for literature and prices.

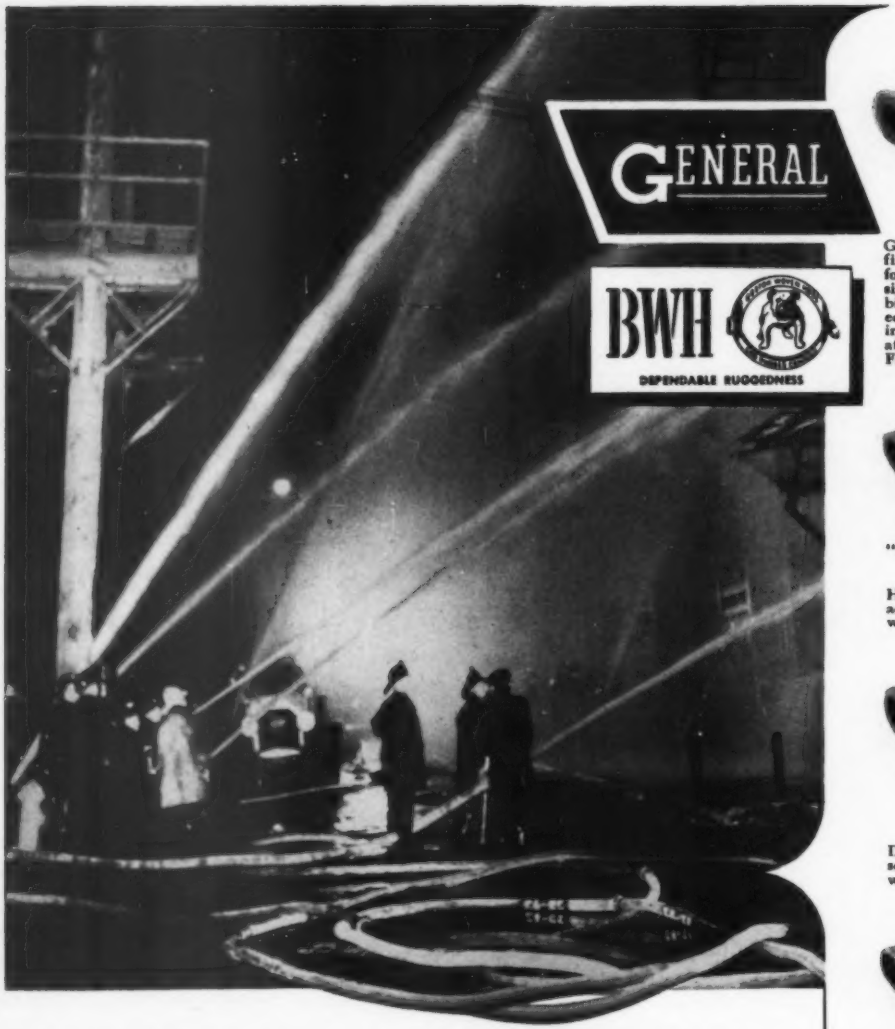
Note: Efficient use of the "FF" FOAM extension can be obtained only when used with Rockwood Nozzles.

Portable Fire Protection Division

ROCKWOOD SPRINKLER CO.

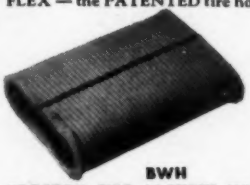
54 HARLOW STREET WORCESTER 5, MASS.

Rockwood WaterFOG Nozzles are approved by Underwriters' Laboratories and Factory Mutual Laboratories.



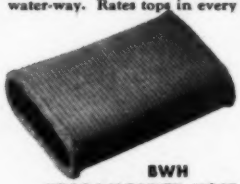
GENERAL
"INNER FLEX" HOSE
Double Jacket Construction

General INNER FLEX is the only fire hose with the genuine, smooth-folding inner jacket, especially designed to provide complete pliability. The specially woven folded edges prevent squeezing and pinching and its smooth rubber lining affords longer lasting life. INNER FLEX — the PATENTED fire hose.



BWH
"BOSTON FIRE JACKET" HOSE
Double Jacket

Heavier, stronger fibers, perfect adhesion, smooth, friction-resistant water-way. Rates tops in every test!



BWH
"PARAMOUNT" HOSE
Double Jacket

Designed for easy handling and long service on tough jobs. Ages well, withstands high pressures.

BWH
"MILO" HOSE
Single Jacket

For long, trouble-free performance in communities where a light service hose is adequate.

BWH
"UNDERWRITERS" HOSE
Single or Double Jacket

Made in strict accordance with the National Board of Fire Underwriters' specifications. Labeled or unlabeled.

The BEST Equipment is the ONLY Protection Against the WORST Blaze

You can't put an end to fires, but you can go a long way toward preventing a tragedy. You can do this by keeping an ample supply of fire-fighting equipment . . . and keeping it in tip-top shape. Records show that the worst blazes have been successfully beaten by the best equipment and skilled handling, while equipment-failure underlies most tragedies.

Hose-failure is one of the big equipment worries that you can be free of always when your department is equipped with BWH Fire Hose. It's light in weight and easy to handle on ground or ladder. Flat cured to fold fast and snug in truck bed. And we'll let its reputation speak for BWH year in, year out toughness and pressure resistance . . . a real bearcat for punishment!

Look for the "General" trademark in the classified section of your phone book. Use this organization's specialized experience to help you in your equipment problems . . . let our Fire Equipment experts tell you more about the BWH 73-year leadership in the fire hose field.

Distributors of Famous

BOSTON WOVEN HOSE & RUBBER CO.

Municipal Fire Hose

THE GENERAL DETROIT CORP.

DETROIT 7, MICHIGAN

NEW YORK • PHILADELPHIA • ATLANTA • CHICAGO • DALLAS

Subsidiary:

THE GENERAL PACIFIC CORP.

LOS ANGELES • SAN FRANCISCO • SEATTLE

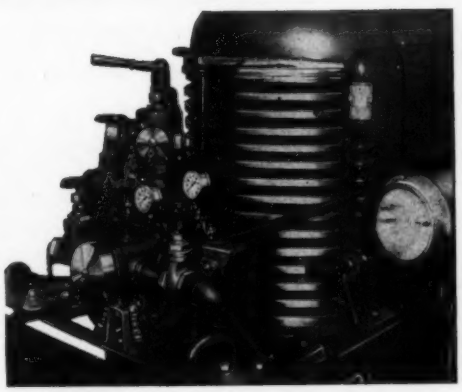
BEAR FACTS!

Come spring or fall you'll be answering many calls to fight running grass and brush fires. You can save valuable time—and land and property—by fighting fires while your truck is on the move.

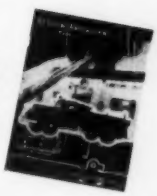
For a really effective job, insist on a UA-50 Barton American front-mounted fire pump—pumps with truck in motion. Even a driver can fight a large grass fire alone!

Whether the truck is in creeper low or moving rapidly, the UA-50 delivers effective high pressure fog or straight streams.

The Model UA-50 also has many other additional features that are well worth knowing about. Before you decide on your fire pump, call the Barton-American representative in your area.



AMERICAN-MARSH PUMPS



Ask for Bulletin 8330 which fully describes all the outstanding features of the UA-50 including its frost-proof construction, high pressure performance using Barton Super-Fog guns, and its specifications.

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Year after year the record furnishes convincing proof of the exceptional value of continuous supervision, regular inspections and tests and proper maintenance of protective signalling systems.

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1950

SPRINKLER SUPERVISORY AND WATERFLOW ALARM SERVICE

Supervisory alarms, indicating temporary impairment of sprinkler systems	171,529
Waterflow alarms, caused by fires or serious leaks	3,421
Manual fire alarms	112
Insurable values of properties protected	$9,011,189,000
Ratio of losses to insurable values protected	3/100ths of 1%
Fire loss immunity in 1950	$99^{97}/_{100}$%

AVERAGE FIRE LOSS IMMUNITY DURING THE PAST TEN YEARS $99\frac{98}{100}$%

WATCHMAN'S REPORTING AND MANUAL FIRE ALARM SERVICE

Investigations of failures of watchmen to signal Central Station on schedule	201,951
Total number of signals recorded	339,107,720
Watchmen's patrol efficiency	99 94/100ths %
Alarms from Manual Fire Alarm Boxes	1,261
Insurable values of properties protected	$15,222,951,000
Ratio of losses to insurable values protected	2/100ths of 1%
Fire loss immunity in 1950	$99^{98}/_{100}$%

AVERAGE FIRE LOSS IMMUNITY DURING THE PAST TEN YEARS $99\frac{96}{100}$%

BURGLAR AND HOLDUP ALARM SERVICES

Attacks on ADT Protection	1,951
Entrances effected	1,099
Captures as result of burglar, holdup and other emergency alarms	745
Insurable values of properties protected	$2,654,611,000*
Ratio of losses to insurable values protected	1/100th of 1%
Burglary loss immunity in 1950	$99^{99}/_{100}$%

AVERAGE BURGLARY LOSS IMMUNITY DURING THE PAST TEN YEARS $99\frac{99}{100}$%

*Not including ADT-protected values in bank vaults, the U.S. Treasury, Federal Reserve Banks and branches, the U.S. Mints and the U.S. Bullion Depositories at Fort Knox, Ky., and West Point, N. Y.

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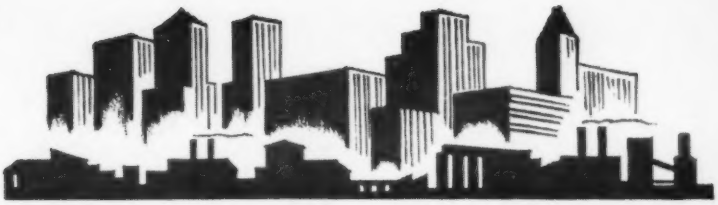

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Motorola FM 2-WAY RADIO

USE AS PORTABLE BASE STATION

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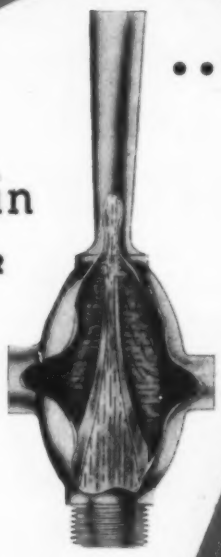

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Aladdin Model AA Dual Proportioner has proven itself in the field. Fully automatic and accurate. Start your pump, and your line is instantly charged with Liquid Foam, Wet Water, or plain water, whichever you desire. Time saving and economical.

Get in line with progressive fire fighters throughout the country. Some Aladdin users: Frigidaire Division, GMC; City of McAllen, Texas; North American Aviation Corp.; Wisconsin Forestry Service; American-LaFrance-Foamite Corp.; The Seagrave Corp.; Celanese Corp. of America; Akron-Canton Airport.

Normal Operating Range of Model AA Proportioner

Lines from ¾" booster to 1½" hose. Pressures from 25 to 150 psi. Nozzle discharge from 15 gpm to 100 gpm.

Effective with any Wetting Agent or Liquid Foam manufactured for fire-fighting service.

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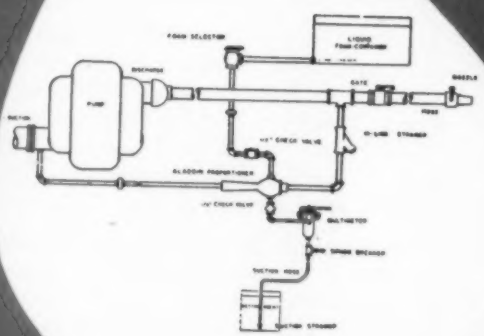

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MARCH, 1951

FIRE ENGINEERING

VOL. 104, NO. 3

With the Editor

Fire the Real Danger

Civil defense authorities in many places are making a common mistake, that of believing that evacuation, shelter and relief are more important in the civil protection picture than fire defense.

Notwithstanding our reiteration that in any disaster, war included, the first emergency forces called, the first to respond with trained men and equipment ready to go to work, is the fire service, few civilian defense authorities appear to have grasped the fact. Thus we see official Washington adopting legislation to spend over $3 billion, approximately half of it earmarked for construction of air raid shelters.

Measured by the number of target centers in the nation, $1½ billion looks like a lot of cash to be spent for the shelter of only a part of the nation's population. Gauged also by the fact that some shelters may actually prove death traps in a bombing and subsequent fire, instead of safeguards, the proposal appears unsound.

What proponents of this and like civil defense measures to dump money into civil defense schemes of doubtful and uncertain value apparently fail to appreciate is that (1) the gravest threat in any modern enemy attack on this nation is fire (from atom bomb, high explosive bomb and incendiary bomb); and (2) Fire is the most serious threat to our fire defense preparations—our defense production and stockpiling!

Fire isn't concerned about target areas; everything combustible, everywhere, is a target for fire. The grain elevator in Red Oak, Iowa, or Rising Sun, Ohio, is relatively as important to the war defense effort as the nut, bolt and screw factory in Port Chester, N. Y.—and may be far easier picking for destructive fire than the latter. So many civil defense directors are mistakingly trying to decide how to safeguard us from enemy raids by concentrating on evacuation, decentralizing of people and plants, and shelter—overlooking the fact that fire is the greatest single threat to our war defense effort and our general economy now!

In short, while we're conjuring up horrible visions of panicky evacuation, overflowing hospitals and roads, and general pandemonium as the outcome of an enemy onslaught which, it is true, is possible, the insidious enemy fire is attacking us every blessed minute!

Take the near-catastrophe that struck the City of Pittsburgh on December 22, last, when fire fighters had to stand by, practically helpless, and watch fire eat its way through two buildings in the high value area of that city. Fire Chief William H. Davis and his men, and local civic officials, had a dramatic taste of what war might bring! We believe that fire, described in this issue of FIRE ENGINEERING, emphasizes the wisdom of putting first things first in civil defense, and in our war preparedness effort!

An editorial in the Pittsburgh Post-Gazette hit the nail on the head. It read:

"The spectacular fire that destroyed a four-story building housing the Pennsylvania Paper Stock Company . . . should serve as a warning that we are in danger of putting the wrong emphasis on the nation's civilian defense program.

"Legislation already passed by the House and expected to clear the Senate soon, calls for the expenditure of some $3,100,000,000 in Federal funds to help states and municipalities prepare civilians against air attacks. Two-thirds of that money would be spent building air raid shelters.

"We question the wisdom of that approach to civilian defense. The great need is not to provide underground shelter for a limited number of people during a raid but to provide the greatest possible protection for the greatest number of people in the trying days and weeks following a raid.

"Firemen responded to yesterday's alarm . . . under handicap of a broken water main. Without water their helpless attempts to bring the fire under control while there was still time in which to save the building were pathetic and exasperating. By the time water was pumped from the Monongahela it was too late.

"Will we bring water up from rivers by bucket brigade if bombs ever hit Pittsburgh? Under the mistaken motion that a big hole in the ground represents our salvation, will we neglect to protect and build the basic services that hold our greatest hope of survival?

"The difficulty of fighting fire when municipal services are out of whack will never be forgotten by those who watched yesterday's blaze. Instead of burrowing under the ground at a staggering cost in money and manpower, we ought to go about the business of making sure that our essential municipal services are capable of handling emergencies."

Fred. Shepperd

Problems Involved in Fighting Large Area Conflagrations

A German Correspondent Relates his Observations Based Upon His Country's Wartime Experiences

By KURT LENZ
Consulting Engineer

Editor's Note: **Some time ago FIRE ENGINEERING received a manuscript from its correspondent in Germany, Kurz Lenz of Hannover, which offered such an interesting viewpoint on the subject of large scale fire and in particular the manifestations of the 'fire storm,' that it was considered worthy of reproduction.**

Not all American fire protection engineers who visited Europe and Japan with the U. S. Strategic Bombing Survey at the close of World War II may agree with the premises and observations which Herr Lenz sets forth herein. The majority, however, will agree that his thoughts merit consideration and study and it is to this end that they are included in this issue.

In the opinion of many students of large scale fire fighting, notwithstanding the information extant on the subject of "fire storms," the American fire service is in the main not too well informed on the causes, progressive development and outcome of such phenomena. It is easy to draw conclusions after the catastrophe; but those who have lived through the crises and fought the holocausts should be in the best position to appraise and evaluate the entire problem. For this reason the following text should provide interesting sidelights on this topic, especially for those fire chiefs of our target cities who are responsible for their fire defenses in peace and war.

OWING to the efficiency of present-day fire forces; their use of modern equipment; improved building methods in towns as well as in the country, and to improved measures of fire prevention, past decades have seen a decrease in fire losses in some parts of the world.

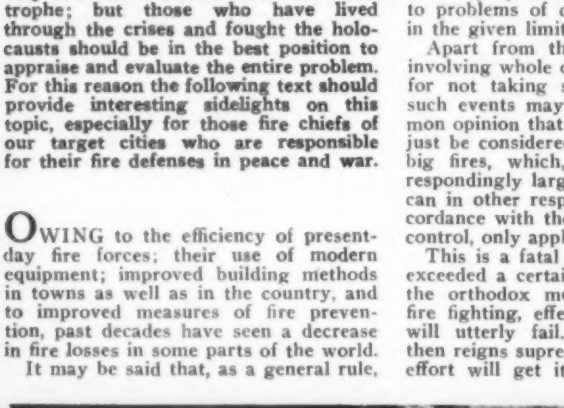
It may be said that, as a general rule, fire forces will succeed in confining fires to the buildings involved at the time of their arrival. It seldom occurs nowadays that a fire spreads over a number of premises — whole blocks of houses, or even whole districts of a town; so rare are such catastrophes that perhaps they are hardly taken into account, and no special measures are taken to cope with them. Nevertheless, any fire chief should bear in mind that under certain conditions, such as unfavorable wind, severe frost hampering operations, delay in attacking a fire due to the main body of the fire forces being engaged elsewhere, and to similar possible events, catastrophical fires may occur even in big cities having large and well organized fire protection forces. As it is the fire service's assignment to defend the population from all losses by fire, responsible chiefs should include even the maximum fire control tasks imaginable in the planning and preparations for any eventuality.

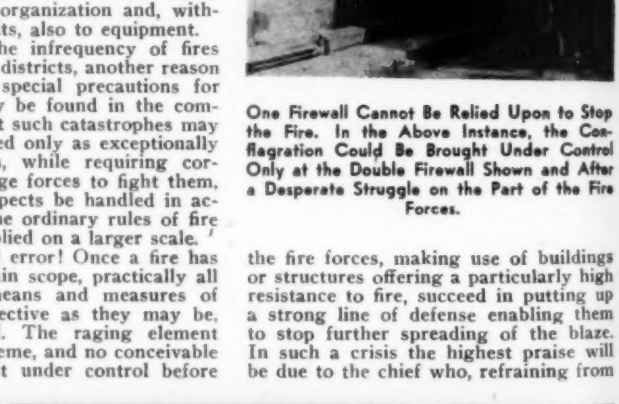
The preparations to be made relate to problems of organization and, within the given limits, also to equipment.

Apart from the infrequency of fires involving whole districts, another reason for not taking special precautions for such events may be found in the common opinion that such catastrophes may just be considered only as exceptionally big fires, which, while requiring correspondingly large forces to fight them, can in other respects be handled in accordance with the ordinary rules of fire control, only applied on a larger scale.

This is a fatal error! Once a fire has exceeded a certain scope, practically all the orthodox means and measures of fire fighting, effective as they may be, will utterly fail. The raging element then reigns supreme, and no conceivable effort will get it under control before the fire forces, making use of buildings or structures offering a particularly high resistance to fire, succeed in putting up a strong line of defense enabling them to stop further spreading of the blaze. In such a crisis the highest praise will be due to the chief who, refraining from

One Firewall Cannot Be Relied Upon to Stop the Fire. In the Above Instance, the Conflagration Could Be Brought Under Control Only at the Double Firewall Shown and After a Desperate Struggle on the Part of the Fire Forces.





Two Views Relating to the Topic of Water Supply. Hose Lines Must Not Interfere with Traffic. In the Picture on the Left, a Booster Pump Is Discernible in the Background. The Picture on the Right Shows a Make-Shift Hose-Line Bridge, Rather Inefficient in Meeting Its Purpose. A Sufficient Quantity of Really Usable Materials Should Be Available.

Typical View of House Destroyed by High-Explosive Bomb. Notice Brick Debris Lying at Bottom and Wood Jumble on Top. This Shows How Efforts to Create Fire Gaps by Blowing Up Houses Will Increase the Danger of the Fire Spreading Instead of Diminishing It.

attempting the impossible, succeeds in achieving the possible.

Decisive factors in fighting a large-area conflagration are quickness in choosing a suitable line of defense, and good organization of the fire forces for resistance at the points selected. Attention may be drawn at this stage to the slowness of a fighting unit in position before a fire (which may be underestimated), although the difficulties encountered in moving even a single line when the fire breaks through at an unexpected point are only too well known. In the event of such an emergency, it is a common practice — provided reserves of equipment are available — to order additional lines to the fire front, even if, on account of shortness of operators, this should necessitate the putting out of commission of other lines already in operation. Although in the case of a medium-sized fire this measure sometimes is the only way out of a critical situation, it cannot be applied in the battle against a really big conflagration, with its enormous demands for equipment, especially pumpers and hose. For this reason it is imperative for a modern fire force to have in readiness pre-established plans on the basis of which the best possible positioning of the equipment available can be decided on at the start, so as to avoid subsequent re-arrangement and re-deployment.

Fundamental Conceptions

In order to understand the behavior of a large-area blaze, a brief review of the phenomena related to combustion may be useful. Leaving out of account fires in the mineral oil and chemical industries, i.e., considering only class "A" fires, we find that it is only necessary to study the physical processes connected with the combustion of wood and related combustible materials (paper, cotton, etc.). For wood to ignite, it must first be heated to the kindling point; subsequently, combustible gases will develop, which, after their temperature has reached ignition point, will take fire. If the burning gases produce sufficient heat to further sustain gasification of the material, combustion will continue so long as there is combustible substance and oxygen unless external influences neutralize the heating effect of the flames. To extinguish a fire, the fireman directs a stream of water on the burning object, cooling it below reignition point. There remains a deposit of water that protects the substance from the heat radiated by adjacent flames. It is a property of water, which is open to the atmosphere, that its temperature cannot rise above 212° F.; at 212° F. it is transformed into steam. This process of vaporization requires much heat—5.3 times as much as is needed in heating a given quantity of water from freezing point to 212° F. This amount of heat is absorbed from the flames and from the burning substance, until the latter's temperature will have decreased below ignition point and the fire dies. The ignition point of wood and like substances is in the vicinity of 500° F. By using water fog, the extinguishing effect is increased, as heat is absorbed from the fire in the flame-zone and, besides, air is displaced by steam developing from same.

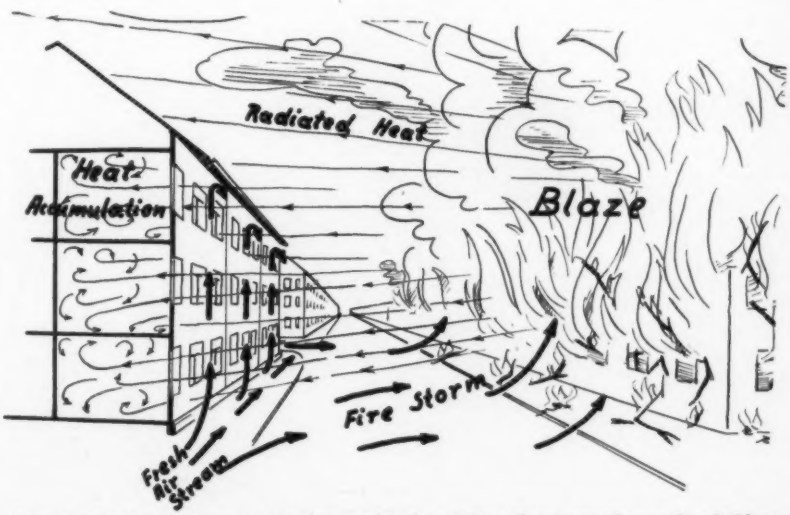
Fire Storm

Flames radiate heat in all directions. As, however, the hot air rises upwards, and thus cold air is sucked in below, more heat flows upwards than it does in lateral direction. In the case of small and medium sized fires, the draft of fresh air sucked in by the flames is a help for the fireman in approaching the blaze to combat it. Where a top story is on fire, this draft of fresh air is often intentionally strengthened by making vent openings in the roof for the exit of the smoke and the hot gases within the building. When whole blocks of houses or districts are on fire, the draft of air will increase to a violent wind, producing the "fire storm."

The fire storm may become so strong as to make it impossible for the firemen to approach the blaze to within stream range without running the risk of being drawn into the flames. When German cities were on fire in the second world war, many a fireman had been able to save his life only by throwing himself flat on the ground and crawling out of the danger zone like a tortoise. The fire storm will carry upwards, against gravity, even the most powerful stream, so that any attempt to attack the fire with water is futile. The tremendous force of the fire storm is illustrated by the fact that tree trunks of more than a foot in diameter were rooted out during fires involving German cities. In a particularly annoying way the fire storm makes itself felt where tornado-like whirlwinds are set up in streets or at street crossings.

Not only flaming pieces of paper and burning rags are carried up into the air by the fire storm, but also smoldering fragments of timber of considerable size, which will often come down at a considerable distance from the fire ground and cause fresh fires. Owing to the strong movement of air towards the main blaze, these fresh fires will grow rapidly. Out of the windows of the burning houses in this zone of secondary fires, flames 10 to 20 feet in length will often shoot out as from a blow torch. Thus the different fires in the border zone will unite very soon with the main fire, and it easily happens that persons are trapped, and their rescue is a difficult operation. If a large number of people are to be saved out of such a fire trap by leading them through a gap in the blaze, the following method is recommended: All the persons to be rescued are made to grip a rope, the foremost end of which is held by one or more particularly courageous firemen, who direct and pull the whole queue through the fire zone. In their deadly fear, the people usually will hold onto the rope so tight that all of them are saved.

To save lives out of encircling flames, it has been proposed to form water lanes by means of a large number of jets pushed forward and arranged 30 to 40 feet apart. The author must state that no information as to the actual working of this scheme has come to his



"Fire Storm" Blowing Towards Main Blaze, and Radiated Heat Threatening Surrounding Buildings. Radiated Heat Accumulates in Rooms with Windows Facing Main Blaze, Originating Fresh Fires, Which Will Rapidly Increase.

knowledge; anyway, it would require not only trained personnel, but also a cosiderable quantity of apparatus and hose.

Due to the violent whirling action of the fire storm in the streets, the direction the flying embers will take is largely independent of the direction of the natural wind at the time. It is therefore necessary that protective measures against danger from flying embers cover a wide zone all around the burning area. To guide the helpers who are employed for this purpose, the imperiled zone must be divided into sectors and each of these placed under the supervision of an experienced fireman. Besides, reserves must be available for quick succor in case a fire caused by the flying embers cannot be controlled by the safeguarding forces. If such a fire cannot be extinguished, there is a great probability that it will unite with the main fire, unless the distance from the latter is too great.

When burning buildings, or parts thereof collapse, this will cause a shower of sparks similar to a snowstorm, which may cover a very large area. Cotton jacketed, rubber-lined hose is then exposed to considerable danger, as the falling embers are apt to burn many small holes into the jacket. For this reason it is advisable that in the neighborhood of the fire, streams be always kept in readiness for wetting the hose lines. Hose without rubber-lining is less subject to this danger, as its outside is wet; nevertheless the use of this class of hose does not enter into consideration, the friction in it being so great that it cannot supply the necessary quantity of water.

Radiated Heat

Although, as we have shown, it is not easy to foresee the effects of flying embers with respect to spreading of the fire, it is perhaps still more difficult to do so as far as radiated heat is concerned. Heat radiation sometimes causes the heat to ignite combustible objects a considerable distance away. Examples are on record showing that fires have jumped streets, squares and water surfaces over 300 feet wide. The danger involved by such a possibility is aggravated by the fact that often whole frontages of houses are evenly subjected to the influence of radiated heat and are therefore apt to burst into flame all at once over their entire extent.

A Row of Brick Buildings Afforded the Possibility of Holding a Conflagration. The Structures Before the Fire Are Shown at the Left; at the Right, the Buildings with Better Resistance Against Fire Still Stand.

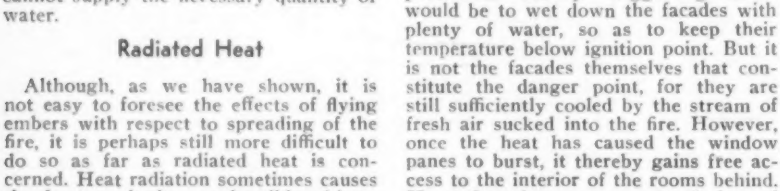
Protection against radiated heat is a very tough problem and requires a large and well trained force. A measure of protection readily suggesting itself would be to wet down the facades with plenty of water, so as to keep their temperature below ignition point. But it is not the facades themselves that constitute the danger point, for they are still sufficiently cooled by the stream of fresh air sucked into the fire. However, once the heat has caused the window panes to burst, it thereby gains free access to the interior of the rooms behind. Here, there is no movement of air, and so the heat accumulates. Sooner than the outer surfaces, yes, even at a period when the temperature in the street is still quite bearable so as not to forebode imminent danger, the interior of the houses may have reached ignition point and be ablaze all of a sudden. From that moment on, the temperature in the street very rapidly becomes intolerable, as heat is now radiated from both sides.

In this event, unless precautionary measures have been taken in time, operations are badly interfered with, and much precious time will be lost in reorganizing defense. Houses, the windows of which are situated within the critical range of radiated heat, can hardly be protected from ignition, not even if they have solid outer walls.

Where ample manpower is available, an attempt may be made to remove combustible inventory from the rooms facing the fire front to back rooms, and, using mobile jets reaching everywhere, to keep ceilings and floors sufficiently wet to prevent their taking fire. Apart from the fact that such an action requires very many hands, it should not be undertaken unless the evacuation of the crews is insured, in case the scheme should fail. If the general situation calls for an effort to hold such buildings, it may be necessary to create artificial ways of escape. Hazardous ventures of the nature in question must in any case be discouraged.

It is a well-known fact that the conventional fire walls separating adjacent buildings do not stop a major fire, even if only single buildings are involved. The heat conduction of the brickwork will raise the temperature of the woodwork in ceiling and floor structures on the side opposite the blaze to ignition point, whereby the fire can spread through intact walls. The same may happen if the fire wall is exposed to intense radiated heat. Consequently, it is necessary to station a guard with small tools (bucket force pump, axe) behind the fire wall. All combustible objects as well as such whose low heat conductivity might cause heat accumulation, should be removed from the fire wall.

If there are no buildings on the neighboring site, windows are frequently to be found in the fire wall. In such cases safeguarding measures must be carried



The Above Picture Illustrates the Usefulness of a Map of the Town Indicating the Essential Features of Each Building. The Facade of the Large House in the Center Gives the Impression of a Brick Structure, But the Lateral Face of the Gable Reveals the Real Nature of the Structure, i.e., Framework Construction. In the Case of a Fire, the Consequences of an Error May Be Fatal

Provided a Sufficiently Strong Attack Is Made, a Fire Can Be Brought Under Control Within a Brick-and-Joist District, Even Where There Is No Firewall.

out with particular force is necessary, regardless of damage by water. Where such windows are situated in the top story, it may be a good plan to open up the roof to prevent heat accumulation.

Influence of Building Methods on Large-Area Conflagrations

A decisive factor governing the spreading of a large-area conflagration is the method by which the houses have been constructed. In a district covered with wooden houses, there is little chance of holding the fire, especially so if the streets are narrow. Many instances on record, among others the recent conflagration of Rimouski, prove that for the most part the distances between rows or blocks or houses are not wide enough for making a successful resistance possible. In Japan, where wooden houses are frequently to be found even in big cities, attempts were made during the war to prevent the spreading of fires over entire districts by subdividing these into sections separated from each other by gaps obtained by breaking down whole rows of houses. The author is not informed as to how far these measures were successful. Apparently, they must have been rather futile, and anyway they can be resorted to in wartime only. Nevertheless it may occasionally be advisable to remove buildings which might form a bridge for the fire to cross over.

Brick and joist structures frequently have no fire walls. Consequently, when adjoining, the fire may eat through the ends of the wooden structural members into the neighboring building, where ceilings and floors will catch fire. The fighting of floor fires necessitates a considerable amount of work with the axe, and trained personnel. If the latter is not available, the neighboring building may be lost. Once it is all ablaze, the fire will in the same way as before mentioned be transferred to the next building, and so on. The fact that at the crucial moment the fire appears to be only trifling may easily mislead those in control into putting too small a number of men in readiness for combating it.

Fire Breaks and Dynamiting

A suggestion that non-professionals will put forward again and again is to isolate a burning district by a belt of fire breaks created by large-scale blasting. Not to speak of the probability that such a scheme would meet with the stubborn resistance of the occupants, who would refuse to leave their houses, it would prove fruitless. If buildings, especially brick on wood, are blown up, it is, owing to the processes engendered by the explosion, the nature of which cannot be explained here, mainly the brickwork that crumbles to pieces, while often many major portions of the wood structure do not become disjointed. After the explosion the brick debris usually lie at the bottom and the wood framing on top of them, in loose piles, so that it is all the more exposed to radiated heat and, once ablaze, forms a greater danger to the surroundings than the burning houses would have done, the brick panels of which would have checked the flames for a certain time. It is much the same with solid brick buildings leveled by blasting, i.e. the wood work will always lie uppermost. So fire breaks made by blasting will not have the desired result.

On the other hand, the leveling of burning structures in which the fire has already loosened the joints to such a degree that an attack from the interior is impossible, has often proved good practice. Explosive charges of about 12 lbs. were thrown into the ground floor and thus the building made to collapse entirely. The purpose served in this way was twofold: The blaze was reduced in height, so that the amount of heat radiated was diminished, and secondly the broken down structure could be approached without risk for the firefighters of being buried in a sudden collapse. Blasting operations, however, require specially trained personnel and special precautionary measures, as the handling of explosives within the range of flying embers and a rain of sparks is a dangerous task. Also, to throw the 12 lbs. explosive charge into the burning house is not a simple matter. Damages to neighboring buildings due to blasting are small and are no reason for refraining from blasting.

Districts consisting of modern type brickwork houses are less imperiled. Experience has shown, however, that the violence of large-area conflagrations caused by mass-bombardment with incendiary bombs was in such districts hardly any less terrible than in framework quarters. The violence of the blaze varies regionally, the fire-resisting qualities of the mortar and also those of the bricks differing with the kind of sand and clay used in making them. In regions where the brickwork collapses after a short time, the radiated heat and, accordingly, the rate at which the fire spreads is high. Generally speaking, however, brickwork is sufficiently resistant to afford good protection from radiated heat. Consequently, to put up a defense in such buildings, with a view to checking the spread of a large-area conflagration, offers good chances. Often it is impossible to preserve these buildings from destruction, especially if they have windows facing the fire; but if determined efforts are made, making the best possible use of the screening effect of the walls, the fire may often be dampened sufficiently and the effect of the radiated heat reduced to such an extent that the fire can be held. If the houses in question are filled with easily combustible substances, or if a large quantity of wood has been used in the construction of the interior, the fight may be a very difficult one.

The nature of the contents must equally be taken into account when estimating the resistance to fire of concrete buildings of all heights. Although, under the conditions described, concrete buildings, too, may burn out entirely, a good fire force may be expected to succeed in stopping even a large-area conflagration if concrete buildings can be used as a defense.

At this juncture, another practical experience may be mentioned: When the

(Continued on page 204)

View of the Burned Over Area of San Francisco After the Conflagration of 1906. A Row of Brick Buildings Is Clearly Discernible, Which Might Have Afforded a Good Chance of Successful Resistance.

Stubborn Fire in State Capitol Results in Heavy Loss

Michigan Ignores Fire Marshal's Warning—Resultant Four-Day Fire Injures 16—Destroys Priceless Records

A STAFF REPORT

Editor's Note: On June 6, 1950, Haven Hall, of the University of Michigan, burned with a loss of over $1 million, most of it resulting from the destruction of a priceless library. Haven Hall had been condemned by Arnold C. Renner, Chief of the Fire Bureau of the Michigan State Police, and Fire Marshal of the State, as a serious fire hazard. But as "Fire Engineering" pointed out in the account of that fire, (August, 1950 issue) the Marshal's office had no power to correct violations in state owned buildings.

On February 8, 1951, fire struck again at a Michigan state-owned property, including another costly library, the huge state office building in Lansing. Like Haven Hall, the state building had been called a fire hazard by Marshal Renner. As in the case of Haven Hall, the warnings apparently fell on deaf ears. The result was the costliest fire in the history of Lansing; destruction of state records and volumes of priceless value; the slowing down of many state agencies and unjust criticism heaped upon a fire force that faced a fire under handicaps unique in modern fire control history.

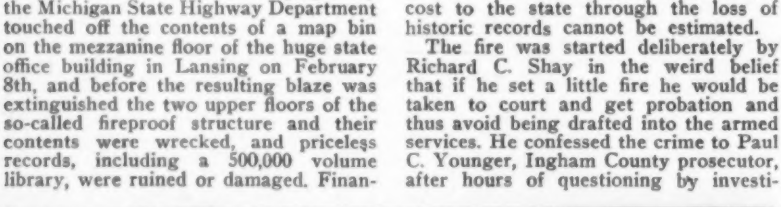
The following account is based upon reports received prior to the official studies instituted after the fire. The detailed reports of the various fire departments that operated on the fire, and the office of Marshal Renner, may vary the final picture somewhat. To the several contributors who forwarded information on this unusual fire, the editors express grateful appreciation.

A 19-YEAR-OLD youth employed by the Michigan State Highway Department touched off the contents of a map bin on the mezzanine floor of the huge state office building in Lansing on February 8th, and before the resulting blaze was extinguished the two upper floors of the so-called fireproof structure and their contents were wrecked, and priceless records, including a 500,000 volume library, were ruined or damaged. Financial loss will exceed $7 million but the cost to the state through the loss of historic records cannot be estimated.

The fire was started deliberately by Richard C. Shay in the weird belief that if he set a little fire he would be taken to court and get probation and thus avoid being drafted into the armed services. He confessed the crime to Paul C. Younger, Ingham County prosecutor, after hours of questioning by investigators, who were not satisfied with his original stories. He faces a possible maximum prison term of ten years.

Shay, with his 18-year-old wife and 7-month-old daughter, live in a trailer on the outskirts of Lansing. He was questioned along with other employes of the M-floor, as it was known, and admitted causing the fire, which he first claimed was accidental. When a lie-detector test was applied, he broke down and confessed deliberate arson.

Due to leave for lunch at 11:42 a.m., Shay said he used the match with which he was lighting his pipe to ignite a map in a bin full of other maps, blueprints and drawings. He said he heard men arguing on the other side of a partition at the time he set the fire, but he left for home and lunch without waiting to note the result of his act. He ate hurriedly and rushed back to the office building, expecting to find the fire engines there. This was about the time the first alarm for the fire was being sounded. Shay claims he hurried to the M-floor where he found fire which he first tried to extinguish, using a building standpipe connection. Driven away by heat and smoke, he claims he turned in an alarm and ran to warn occupants of the floors above and below. However there is no record of this fire alarm.



Ice Coated Rear of State Office Building with Fire Still Burning
Stream from aerial ladder directed into top floor of big building from rear court. Note lines leading into sixth floor. The mezzanine, or M-floor, and seventh floor were wrecked by the four-day fire and will be removed.

Building a Huge Structure

The state office building is located at 300 S. Walnut street, Lansing, occupying most of the block between W. Washington and W. Kalamazoo streets. It is seven stories in height, shaped like the letter "E" with center stem removed, with the main section facing S. Walnut street and wings at the northern and southern ends.

The building was completed and occupied 28 years ago and was then considered the last word in fire-resistant construction. However, in construction the designs were altered; what was originally intended as the storage attic was sandwiched in between the sixth and seventh floors, and it was on this vault-like floor, filled with records and equipment, that the fire was started.

The building, of reinforced concrete, steel and marble, contained a normal workday population of about 1,300 persons all employed by the state. It was occupied by the following state departments: Highway (with over 300 employes, occupying most of "M" and the seventh floors), Conservation, Agriculture, Public Service Commission, Corrections, Insurance, Workmen's Compensation, State Library, Banking, Tax Commission, Tax Appeals Board, Labor, Accounting, Purchasing, Building Office Service, Administration and Budget.

Lansing Fire Chief Felled in State Building Fire

Fire Chief Hugo Fisher, who led the initial attack on the incendiary fire in the Lansing state office building, is carried out by police and firemen, mask equipped, after his collapse from smoke poisoning and exhaustion.

The structure had the usual long halls and corridors and was unsprinklered, but had ADT supervisory service. It was equipped with standpipes and outside and inside hose connections and first aid fire fighting equipment.

Fire Marshal's Recommendations Ignored

In 1945, State Fire Marshal Arnold Renner is reported to have made a number of recommendations for the elimination of fire hazards on the mezzanine floor of the building. These included an automatic sprinkler system, enclosed stairways to be provided at each end of the floor, and the erection of fire walls, or stops.

The funds for these safety measures were never provided. Because it was a government building, there was little Renner could do but urge that the hazards be eliminated, and recommend the measures to accomplish this.

Commenting on this point, the Lansing State Journal said editorially: "Had the steps recommended six years ago by the fire marshal been taken, the fire might have been promptly extinguished by an automatic sprinkler system, or at least the firemen probably would have been able to prevent serious loss."

The seventh floor was largely given over to the highway drafting division and other highway offices and the highway department. Located in the center section on this floor, also, was the telephone switchboard and office. The M-floor contained highway department offices and micrograph department, and the state mimeograph office. Both wings were heavily packed with storage including files of records of different state departments. The main offices of the highway department were located on the fourth floor.

The building housed the state library of 500,000 volumes and a travel-library, the latter located in the basement. All counties and sections of the state were represented in the local and family history section at the east end of the library; every state governmental department was represented in the library on the fourth floor of stacks. The third floor of stacks contained newspapers of Michigan, dating back to the early 1800's. The traveling library, which was a total loss, contained one of the four remaining sets of U. S. Supreme Court decisions. The collection of the state historical commission, located on the mezzanine floor, also was considered a total loss.

Most of the furniture and much of the contents on the first five floors of the structure suffered only water damage but because of the freezing weather, and failure of heat in the building, losses will be heavy and salvage costs will be high. This notwithstanding the strenuous efforts to cover the more valuable contents with tarpaulins.

Delayed Discovery

Although Shay admits setting the fire about 11:40 a.m. on Thursday, February 8, the first alarm was not received by the fire department's control center until 12:31 p.m.* This came from a box at the corner of W. Washington and S. Walnut which was snapped by a woman who saw smoke from the street and brought five department units. At almost the same time, Mrs. Rogna Eustis, an elevator operator, discovered smoke and telephoned the department. Two men employes also noticed smoke over a concession stand in the lobby of the building at about the same time. At 12:55 p.m., 23 minutes after the first alarm was sounded, second and third alarms brought almost the entire remaining Lansing forces and operators at the Control Center began calling in

*When arraigned in court Feb. 13th, Shay changed his story slightly but still maintained he had touched off the costly fire. In his original statement he said he started the fire before leaving the building at 11:42 A.M., Thursday. His more recent statement is that he set the blaze *after* he returned from lunch, at 12:38 P.M. After he set the fire he tried to put it out but couldn't, and ran out of the office to spread the alarm.

At the house of representatives inquiry, Assistant Chief Decker told the committee he believed there was a 50-minute delay between the start of the fire and calling of the department. "Had the fire been accidental, he said, "with employes in the vicinity to call the department immediately, we could have extinguished it with fog with no loss except to a few papers."

Chief Fisher, who was overcome by smoke and relieved by Chief Decker, said the extreme heat made it humanly impossible to get through to the center of the blaze. "We had three strikes on us when we arrived," he said, "the extreme cold, no lights on the mezzanine floor and no windows." He said that if the floor had been equipped with fire doors, fire walls and a sprinkler system the fire wouldn't have happened.

Chief Decker said that aid was requested of Battle Creek and Flint around 9:00 P.M., Thursday, and Grand Rapids and Jackson were asked to send equipment a short time later.

The report of Capt. Kopietz disclosed that 14 pieces of fire apparatus and more than 125 firemen were in action at the fire's peak period.

Correction: Late reports indicate the first alarm was received at fire headquarters at 12:40 P.M. and not 12:31 P.M. as stated in press reports. An ADT combination night watch and fire alarm box was snapped in the building at 12:42. ADT operators heard fire apparatus responding as they were sending out their signal to the department.

Firemen Use Contractor's Derricks to Fight High Fire

Front of the burning state office building, Lansing, with fire involving mezzanine and top floors of block long structure. Three cranes, one of them 110 feet high, were used as water towers. Note ice sheathed exterior.

all off-shift men of the city's 163-man fire department to duty.

Soon after the first-due companies encountered the heat and smoke conditions on M-floor, where the fire was centered at that time, a special call was sent in for masks and respiratory protective equipment. But even with this protection, the men were reported unable to operate their lines in close enough proximity to the fire to reach the seat of it, because of the unbearable heat in the vault-like area. Efforts to vent M-floor are said to have proved equally futile. In spite of handicaps, firemen struggled to hold a position on this floor until about 1:50 p.m., when they were forced out of the record rooms. A number of firemen collapsed during these early operations and others took punishment which necessitated their later temporary retirement.

As time wore on, and it became more obvious to Fire Chief Hugh Fisher, in charge of the battle, that his men could not long confine the fire to the north wing of the M-floor, and it was almost impossible to breach the floors and walls, he considered using dynamite to blast holes in the M-floor so as to get at the heart of the flames. The idea was given up, however, when all contingencies were weighed.

Power Tools Used

Pavement breakers, pneumatic drills and all other available forcible entry equipment was put to work in the effort to cut through the heavy, reinforced concrete floors. Fire control efforts, however, were slowed further as the elevators were knocked out, shortly before 4:00 p.m., necessitating long, arduous climbing of stairs with hose and equipment. Soon after firmen had made their size-up, all employes were ordered out of the building although there was little evidence of the fire below the fifth floor, except for the water which soon found its way down shafts and stairs and through vertical openings.

Early in the fire, the building's telephone switchboard went out of service and communications between firemen in the building and those in the street became a problem. Somewhat later police walkie-talkies were pressed into service.

About 5:30 p.m. the fire broke out on the sixth floor and men were forced to retreat further. Shortly before this, Fire Chief Hugh Fisher collapsed and was removed from the building and the direction of the battle was taken over by Assistant Chief Charles Decker. He faced a tough situation. Most of the Lansing apparatus and about 75 of the city's fire force had been at work in the bitter weather, the thermometer registered close to zero during the day; some of his officers had been incapacitated, and in spite of fire resistant construction, the blaze in the vast structure continued to spread, feeding on combustible records, files, etc.

Captain Robert Foster, of Central Station's high pressure unit, Squad 1, was one of the first casualities, being hospitalized shortly after 12:30 p.m. due to smoke poisoning.

About 6:00 p.m. it was reported the first two of the seven local companies that responded on the first three alarms were returned to quarters to rest and "thaw out." All firemen whose clothing was soaked or, suffering from the effects of the weather and the smoke, were released to change clothing and snatch some needed rest before returning to the firing line.

In the meantime, some incoming fire forces helped to share a part of the burden, and in the evening aid began to arrive from cities throughout the state, as more and more help was summoned.

At about 7:00 p.m. on Thursday night, Chief Decker reported the fire had reached the stairwell in the center of the building. An hour later the first flames broke out of the building to brighten the cold night sky. The deluge of water that was being directed at the upper floors of the structure appeared to have little effect. Water from all the available aerial ladders, as well as nozzles lashed to the booms of extended, spliced building contractor's cranes, one of them 110 feet long, was reported being delivered at about 6,000 gpm.

Aid Called from Distant Cities

Early in the evening Fire Marshal Arnold Renner, who had arrived in haste from a meeting, after consultation with fire fighters and a survey of the building, which he knew from personal inspection, requested more out of town help. By 10:00 to 10:30 p.m., aerial ladders from Battle Creek, Flint and Grand Rapids, the latter a 100-foot unit, had arrived. Pumpers also came in from Battle Creek and Jackson. The latter city was unable to dispatch its own aerial because of the need of protecting its own city. These proved a welcome reinforcement. Lansing's only 100-foot ladder was frozen in, and thawed out, several times during the long period in which the fire was fought. The city's 65-foot aerials were reported ineffective as water towers because of their lack of reach.

It is believed that this is the first large-scale fire wherein steel derrick cranes were employed to fight fire as water towers. The idea of their use came from S. V. Jim Weed, of the Jarvis Engineering Works, after he observed the difficulty fire fighters were having in attempting to reach the seventh floor with streams from the 65-foot ladders. He broached the suggestion to Chief Decker and offered the cranes. Two of the derricks were provided for by the Jarvis Company, and one by the Reninger Construction Company.

It was necessary for workmen to bolt the sections of the steel derricks together after the equipment arrived on the fire ground. Once assembled, hose lines and nozzles were attached, and soon the three "towers" were directing heavy streams into the upper part of the building. Most effective of these was the 110-foot derrick of the Jarvis Company. This was able to shoot its stream on a direct line into the top floor. The other two derricks reached a height of 85 feet.

About 9:00 p.m., Thursday, building department heads, who had previously been ordered out of the building, were

(Continued on page 208)

Firemen in "Endurance Contest" at Lansing State Building Fire

Thirty hours after the start of Lansing's $7 million state building blaze, firemen operating from the court are attempting to reach fire in the south wing. 100-foot ladders proved the most effective as water towers. Temperature at this time was near zero.

Fire Spreads As Water Fails—Firemen Face Crisis

Pittsburgh Fire Fighters Get Taste of What Enemy Attack May Be Like—Prevent Conflagration

A STAFF REPORT

Editor's Note: **Some small idea of what fire control under war emergency conditions is like was experienced by Pittsburgh fire fighters and civic officials last December when a fire, described in this report, got out of hand due to partial failure of water supplies resulting from the break of a large main, and threatened the city's high hazard Golden Triangle district.**

Thanks to Fire Chief William H. Davis of the Pittsburgh Fire Department, who was in charge during the crisis, we are permitted to bring our readers the "inside story" of this critical incident.

ON December 22, 1950, a break in the 36-inch cast iron water main leading from Highland Park Reservoir No. 1, in the Pittsburgh area, left the city's downtown area virtually without fire protection. The rupture of this supply—one of three feeders to the downtown area, left but a trickle of water for fire protection in the remaining mains.

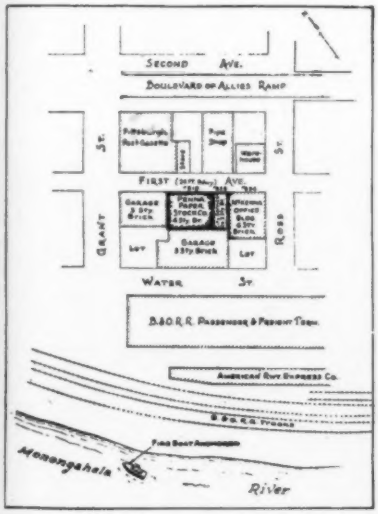


Diagram of Fire Area

At the most critical moment, while water department crews were struggling to control the flood resulting from the break, and restore service, fire was discovered in the four-story brick Pennsylvania Paper Stock Company at 518-26 First Ave., in downtown Pittsburgh. Before that fire was controlled, the paper company's premises and an adjoining garage were wrecked and a six-story exposed office building was damaged; hundreds were forced to flee the structures, and some businessmen of the area were planning to evacuate their premises for fear of a devastating conflagration.

Fortunately, however, the fire did not catch the Pittsburgh Fire Department entirely unprepared when it was detected early on the morning of the 22nd. Five hours before, the fire department officials had warning of the rupture of the large feeder main in the Lawrenceville District, the breaking of which caused flooding of streets in that area, reducing the available supply of water in downtown Pittsburgh by approximately 65 per cent.

Being forewarned of the anticipated shortage, the Fire Department's fireboat C. D. Scully responded on the first alarm received for the paper company's fire and anchored in at the foot of Grant Street, approximately 500 feet distance as the crow flies.

The warehouse, as shown in the diagram, is located on the south side of First Ave. on a 24-foot roadway, about midway between Grant and Ross Streets. In its rear is a 3-story brick garage and storage building and on its south is another 3-story brick garage. To the east is a 2-story brick service station and beyond that, at the corner of Ross, the 6-story McKenna brick office building. Across the street from the garage in the rear are the B. & O. R.R. passenger and freight terminals, express company buildings and railroad yards.

The fire in the paper warehouse, which incidentally has been no stranger to Pittsburgh firefighters, veterans claiming to have answered 20 to 25 calls there in as many years, apparently started from spontaneous ignition on the second floor. An estimated 200 tons of paper was being sorted and baled in the structure at the time. This, with the combustible construction of the building itself, gave the blaze plenty of fuel to feed upon.

The first companies, responding on a still alarm following a telephone notifi-

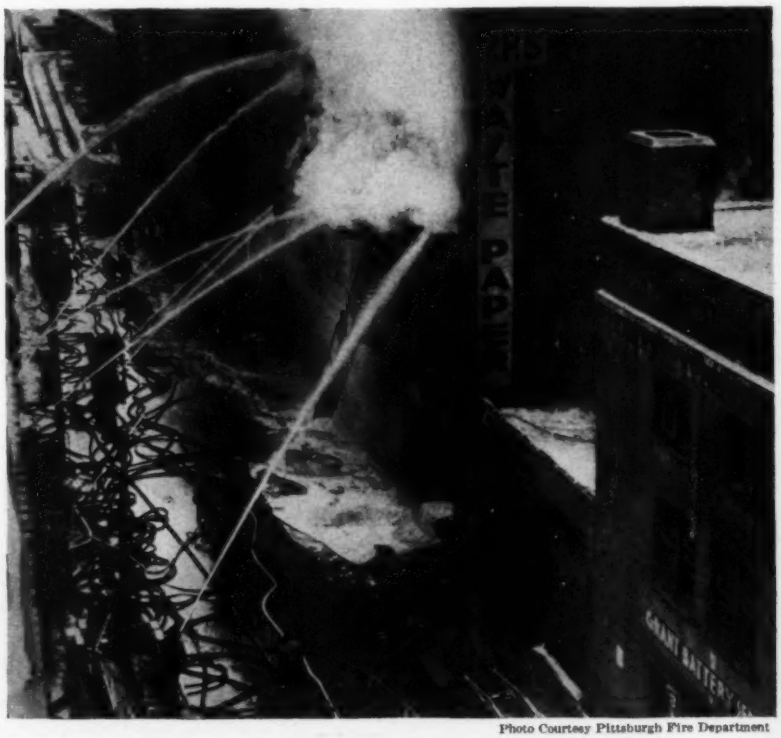


Photo Courtesy Pittsburgh Fire Department

Pittsburgh Firemen Get Water on Threatening Fire After Delay

Firemen under Chief William Davis beginning to get heavy streams on blaze that gutted two buildings, and threatened downtown "Triangle" area when large water main broke.

cation, viewed a roaring fire on the top two floors of the old plant. A box alarm was struck at once, followed shortly by additional calls, six in all within a period of 45 minutes, bringing 40 per cent of the city's entire fire-fighting forces to the scene. A total of 29 companies and over 200 firemen ultimately engaged in the struggle.

The first engine companies to respond connected in the customary way to the city hydrants, and ran into trouble. In most cases they either pumped from a vacuum or received only a scant output for their efforts.

The situation confronting Chief William H. Davis and his men was dismal, to say the least. A raging fire involving the upper part of an old combustible structure, stocked with paper products, accessible from only one side, that a narrow street, with hazardous exposures on sides, front and rear, would present a problem for any department even with ample water supplies. But with water at a premium and almost the sole unhindered supply being from the fireboat, itself having limited pumping capacity, the crisis was serious and immediate.

It was an apprehensive moment for the aggressive crew of Engine 3, which had taken its line up the paper plant's front fire escape only to have to give up their vantage position and retreat, on orders of the Chief. They complied only after being shown the futility and danger of their position, with no water in their line. It was no less disturbing to other company crews to find themselves with little or no pressure on their hose lines.

At this juncture additional forces were being called. Five hose lines were stretched approximately 1,000 feet to the fireboat and attention centered on preventing serious extension of the fire. It was mainly a problem of setting up as tight a defense as possible, utilizing every available gallon of water.

The fire quickly involved the paper warehouse, and spread to the adjoining City Service Company, a building janitor service. All efforts were directed at this point toward preventing extension of the blaze into the McKenna Office Building. Over 300 occupants of this structure were evacuated; and occupants

Photo Courtesy Pittsburgh Fire Department

Pittsburgh Firemen Have Anxious Moments as Water Supply Fails

Start of fire in paper processing warehouse which gained momentum as first fire fighters are unable to wage attack and are forced back down fire escape and go on defense. Note empty and only partially filled hose lines.

of the garage in the rear also were ordered out. In the adjacent West Penn Power Company's garage, at 14 Grant Street, plans were made to flush out 1,100 gallons of gasoline from two underground tanks, if the building was threatened. Sixty motor vehicles were removed from storage in the structure. Located in the Pittsburgh Paint Supply Company's structure just behind the burning building were 30,000 gallons of flammable paint, adding to the department's worries.

In less than an hour, the roof of the paper warehouse was gone and the City Service building was involved. By this time, however, some effective streams were in operation, fed by the fireboat and relays of pumpers. These were concentrated to protect the McKenna Building and prevent extension of the fire across First Street. Although the walls of the Post Gazette Building at First and Grant became hot to the touch and the side of the McKenna Building was scorched and some windows cracked, the fire was kept from these structures.

Firemen were showered at times by broken glass as windows of burning buildings blew out. The entire district, given over to warehouses, small machine shops and parking garages, was blacked out by smoke. As firemen fought to make most effective use of poorly charged hand lines and tried to bring some heavy caliber streams into play, water department engineers and maintenance men labored feverishly to restore some service by re-routing water supplies. Ultimately they managed to increase the volume to the point where fire fighters were able to put a limited number of turrets and monitor nozzles into operation and these, with the fireboat's contribution from the Monongahela River, finally turned the tide and practically assured the worried and hard pressed firemen that no catastrophe would eventuate.

Five firemen were reported injured, only one requiring hospitalization. He was Acting Captain John McLaughlin, Engine 19, who received cuts and bruises. Treated at the scene were Firemen John Ryan, leg injured in fall from a ladder; Joseph Naughton, Engine 3, cut by flying glass; Battalion Chief Sol Kramer, burned by hot tar, and Charles Geis, Engine 5, hand cut by glass.

Fire department records show these alarms: First at 9:45 A.M.; second—10:05; third—10:09; fourth—10:12; fifth—10:21, and sixth at 10:40.

An ironic twist in the whole situation was provided by the fact that the paper company's building was equipped with a wet pipe sprinkler system, which failed to function adequately because of the water shortage.

Hundreds of Christmas shoppers jammed the streets to view the battle, few of them having any comprehension of the conflagration threat to the city as water failed. They were controlled by extra police who also re-routed traffic and trolleys.

At 4:00 P.M., Chief Davis began to return companies to quarters and men were able to enter the paper company's premises to overhaul and extinguish smoldering fires. By 5:00 P.M. the situation was "all clear," although two watch lines were kept on the premises all night.

The Salvation Army's new emergency unit, which was scheduled for dedication a week later, was given its baptism, as the Army handed out coffee and doughnuts.

The loss was estimated at $250,000.

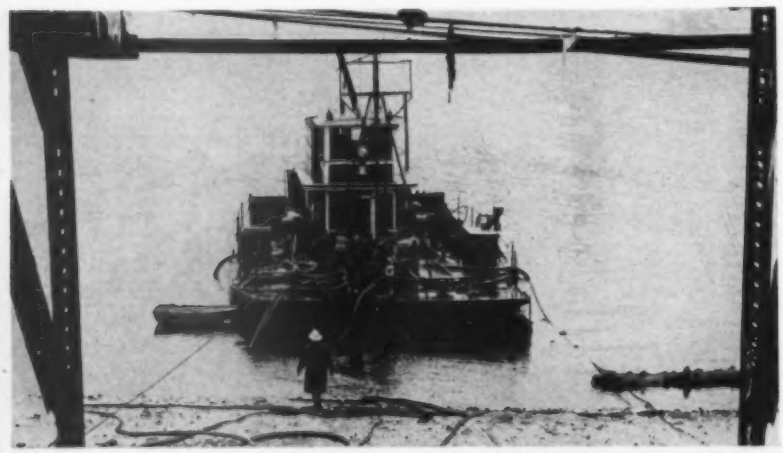


Photo Courtesy Pittsburgh Fire Department

Pittsburgh Fireboat Helps Save the Day When Water Fails

The homely but efficient "C. D. Scully," entire fire fighting fleet of the Pittsburgh Fire Department, vindicated itself and the department's determination to keep it in service, on December 22 last, when it aided firemen to prevent possible devastating conflagration. It supplied five hose lines, averaging 1,000 feet each, when water in mains was cut 65 per cent.

Credit to Correspondent Sanford

The editors regret that in giving credit for data upon which the interesting account of the Hotel Adelphia fire in Huntington, W. Va., (February issue) was based, the assistance of correspondent Warren D. Sanford was inadvertently overlooked. Appreciation is hereby expressed to Mr. Sanford for pictures and factual data.

Fire Service Ladders and Their Use—Part X

The Use and Abuse of the Big Stick—Second Installment

By HUBERT WALKER

Editor's Note: This is the second installment of Part Ten in the series of chapters dealing with fire department ladders, ladder evolutions, ladder use and preventive maintenance. The first installment was published in February. It covered details of construction, use and testing of aerial ladders, and demonstrated certain limitations of both the wood and the metal types. The following installment carries these subjects further and concludes with a summing up, and fundamental recommendations for every user of aerial ladders.

The entire Part X of author Roi Woolley's series on "*Fire Service Ladders and Their Use*" is taken from the interesting and instructional paper delivered by Mr. Hubert Walker, Manager, MFA Sales Engineering Department, American LaFrance-Foamite Corporation, Elmira, N. Y., before the twenty-third annual Fire Department Instructors' Conference in Memphis, Tenn., Jan. 11th last.

The editors gratefully acknowledge the authorship of the two-section "Part X," including the photographs and diagrams which accompany Mr. Walker's message. At the same time acknowledgment is made of the cooperation of Mr. Richard E. Vernor, Chairman of The Fire Department Instructors' Conference, for permission to include Mr. Walker's paper in Mr. Woolley's series.

THE uses of the aerial ladder are many and varied, not confined to actual fire fighting.

Figure 14 shows an aerial used in the rescue operation of a would-be suicide. Incidentally, this photo shows the third time this aerial has been used for the same purpose.

Figure 15 and 16 show the rescue of a man from a tower 50 feet feet high. Serious injury prevented getting the man down any other way.

Figure 17 shows a man being hoisted from a deep quarry.

Figure 18 shows a rescue being effected.

Figure 19 shows the aerial ladder being used to gain access to the upper floors of a burning building. A 10-foot spacing of the men ascending a ladder

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is recommended. Under these conditions the ladder not only supports the static weight of the men, but a live loading factor is added due to their movement.

Figures 20 and 21 show aerial ladders in use as water towers.

Figure 22 also shows an aerial ladder still functioning after an explosion in the building that killed and injured people in the street. The fireman on the ladder fortunately wore a safety belt so he was not blown off the ladder, but continued with his work of directing a stream on the fire.

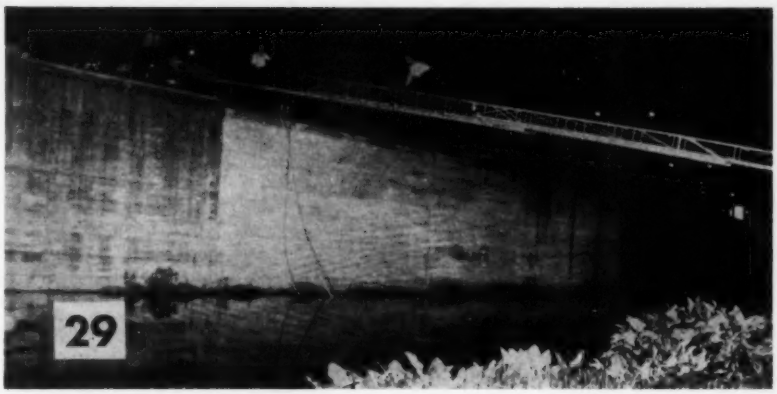
Figures 23 and 24 show aerials in use on a ship fire. During this fire the aerials were first used for rescue operations. The fire department had to fully extend the aerial ladders in a near horizontal position to reach the decks. Twenty-two persons escaped by one of these ladders. Under these conditions where the top end of the ladder could not be supported, and with many people on the ladder, a short ground ladder was placed under the aerial ladder to give it support. Examples of such good judgment are to be commended. It shows clear thinking in the face of great urgency and pressure. Knowing the ladder limitations under the conditions of required use, such good judgment should always be used, as in this case.

Ladder Abuse

Ladder abuse can be listed in three classifications:

(1) Lack of maintenance
(2) Overloading
(3) Improper handling

Figures 25 and 26 show two wood aerial ladders, in regular service at the time the photos were taken, which had deteriorated from lack of maintenance to a point that they would hardly support themselves. Neither ladder would support a 100-lb. weight without failure. No wonder the firemen felt they were unsafe. These two ladders were immediately scrapped after this inspection.



Overloaded ladders with sometimes tragic results can only be mentioned. From the safe load limits indicated in this paper, which does not cover all sizes due to time limitation, we hope to see a decrease in this practice.

Improper Handling

Improper handling can be subdivided into three causes:

(a) Lack of training
(b) Carelessness
(c) Use under emergency stress without regard to ladder load limitations.

Figures 27 and 28 show an aerial ladder damaged due to carelessness. The truck was placed on a slight grade, the ladder raised and fully extended over a building about 40 feet high, without setting any brakes on the truck, or placing wheel chocks. As the ladder was moved, the truck started to roll down the incline. As it came off the jacks the weight of the ladder caused the truck springs to deflect and lowered the ladder to the roof. With the ladder at right angles to the truck and fully extended, it hit an obstruction on the roof. With the ladder moving sideways, the weight of the extended sections caused a lateral bend in the ladder.

Figure 29 shows a ladder used in a rescue operation. Due to the horizontal position of the aerial ladder, a ground ladder was placed to provide added support. An officer removed the ground ladder later as unnecessary with the result that the fifth wheel on the tractor was damaged.

Summing Up

In summation, we recommend, first know your ladder. If you do not know the load limits, write the manufacturer.

The uses of the aerial ladder have far exceeded the original purpose for which it was designed. You can depend on the fire service to get a maximum of utility from any ladder truck they have.

The second recommendation is frequent training. By frequent training, we mean at least one day each week—52 weeks each year, and train under simulated fire conditions as much as possible. Just waving the ladder around in the air is not what we mean. Use a drill

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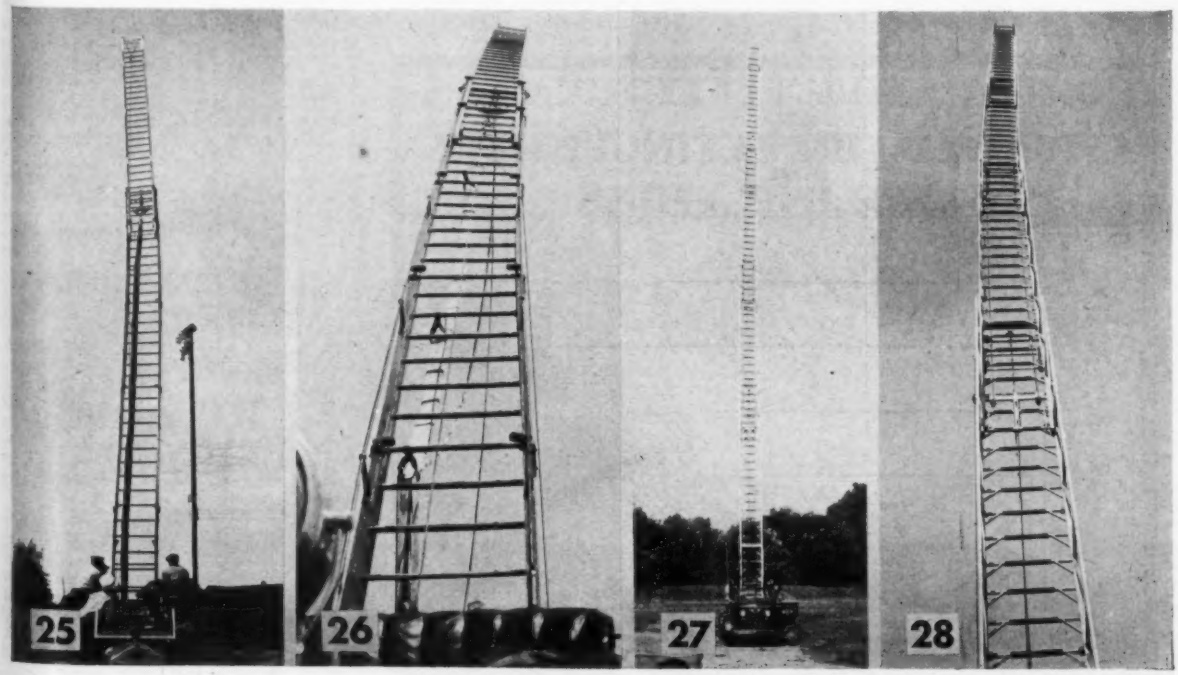


Keep Your Powder Dry

By ARTHUR B. GUISE*

IT is very likely that ten years ago a group such as this would have been but little interested in listening to a discussion of dry chemical fire extinguishers. At that time there were less than 10,000 dry chemical fire extinguishers of all makes and sizes. At the present time there are nearly half a million dry chemical fire extinguishers in use. In addition, dry chemical piped systems have been installed in industrial plants and pipe line pumping stations, and fire trucks containing up to 4,000 lb. of dry chemical have been constructed. In 1941 there was only one manufacturer of approved dry chemical fire extinguishers and now there are at least eight manufacturers of Underwriters' Laboratories approved dry chemical fire extinguishers. Most of this activity in dry chemical fire extinguishing equipment has taken place in the past four years and apparently the use of this type of equipment will continue to increase rapidly in the future.

As you know, dry chemical is composed primarily of sodium bicarbonate (baking soda) thoroughly mixed with other materials to make the sodium bicarbonate moisture repellant, resistant to caking, and free-flowing. The earliest use of sodium bicarbonate as a fire extinguishing agent was in tubes. The first mention of this material in tubes in published fire protection literature followed the Iroquois Theatre fire in 1903 in which 600 lives were lost. An investigation after the fire showed that one of the stage hands had attempted to use a tube of sodium bicarbonate and had failed to control the fire. Underwriters' Laboratories, Inc., made tests of the tubes and found that they contained primarily sodium bicarbonate with iron oxide, chalk, sand, clay, talc, or starch added to prevent caking but that none contained water repellancy agents. Out of 31 tubes over four years old, the Underwriters' Laboratories found that 11 were caked sufficiently to prevent use.

The Germans developed a gas-pressure type dry chemical fire extinguisher called the "Total" which used a dry chemical consisting primarily of sodium bicarbonate but also containing about 15% of borax and mixed with water-repellancy agents. The borax included in the German dry chemical was supposed to melt on striking a hot surface and to form a protective coating over materials such as wood, but the value of the borax coating is highly debatable.

The first gas-pressure type dry chemical fire extinguisher manufactured and sold in the United States was made in about 1928. This extinguisher had a carbon dioxide cartridge outside of the dry chemical container and was a distinct improvement over the German model because the American unit was equipped with a hose and with a nozzle which permitted control of the flow of dry chemical.

The pictures show the various models produced and the approximate year in which they were first sold. No attempt is made to show every size and make produced in the 1930's but it will be noticed that all of these extinguishers had the carbon dioxide cartridge located within the dry chemical container and all used a hose and shut-off nozzle. Also, all of these extinguishers were filled through the bottom opening, the mechanism for releasing the carbon dioxide which expelled the dry chemical being an integral part of the head ring of the extinguisher.

In 1943 the first major improvements in dry chemical were made. Among other changes in the dry chemical, the size of the particles was reduced. This change in the dry chemical resulted in an increased effectiveness amounting to about 50% when measured in terms of the areas of gasoline fires in steel-sided test pans which could be extinguished.

In 1944 a new type of dry chemical fire extinguisher was introduced. This extinguisher resembled in many respects the first gas-pressure type dry chemical fire extinguisher produced (in 1928) in that the carbon dioxide cartridge was outside of the dry chemical container, the unit was equipped with a hose with shut-off nozzle, and the dry chemical was charged into the extinguisher through the top.

This illustration and the others showing the various types of dry chemical fire extinguishers produced in the later years indicate not only the approximate time in which these units were put on the market but also show all sizes and makes.

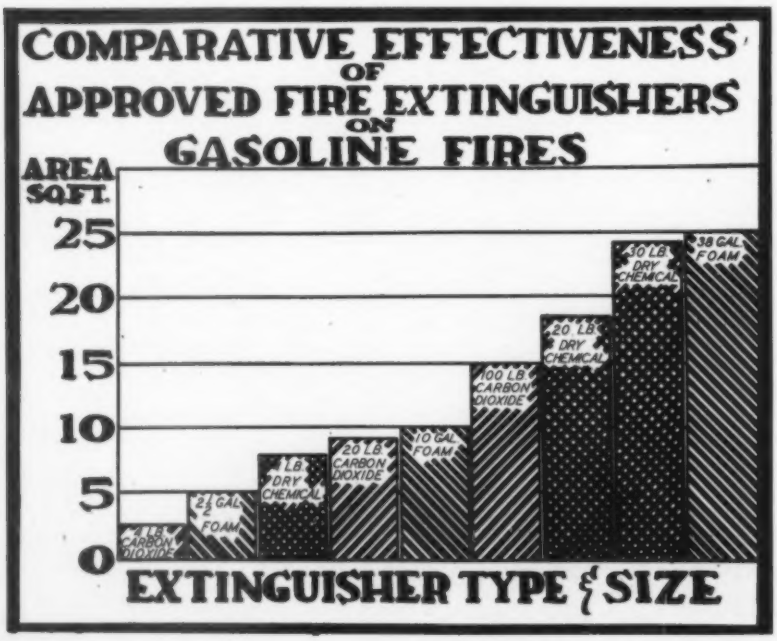
In 1946 another new design of dry chemical fire extinguisher was brought out. These units differed from previous models in the nozzle design and in the use of a removable cartridge guard, the cartridge on this extinguisher also being outside of the dry chemical container. These units also differed from previous dry chemical units with the cartridges outside in that the carbon dioxide was released from the cartrjdges by puncturing the seals instead of opening valves. The nozzle differed from previous designs in that a lower velocity, wider, stream of dry chemical was produced which is claimed to require less technique on the part of the operator than did the higher velocity, more narrow streams of the older types of dry chemical extinguishers.

In 1947, two new dry chemical extinguishers were brought on the market, both by the same two manufacturers whose extinguishers were produced in the 1940's. These extinguishers were in 4-lb. and 10-lb. capacity, the first units of these capacities produced in the United States. The 4-lb. unit has the cartridge inside of the dry chemical container, is filled through the top, and the discharge nozzle is at the bottom, no hose being used. The 10-lb. unit is a smaller version of the extinguisher produced in 1944. In 1948, three new dry chemical extinguishers were produced by manufacturers new to the dry chemical field. These units were in 5, 10, and 25-lb. capacities. The 5-lb. and 10-lb. units resemble the 4-lb. unit produced in 1948 but are filled through the bottom, the nozzle assembly being removable from the shell. The 25-lb. unit is radically different from any earlier dry chemical extinguishers in having the cartridge at the top of unit, attached to the fill cap. The carbon dioxide is released to the dry chemical chamber by a valve operated by a thumb lever.

In 1949, the largest number of new types of dry chemical extinguishers ever brought out in one year appeared on the market. Eight new extinguishers were brought out by four manufacturers, three of whom were new to the dry chemical field. One, an extinguisher of 6¼-lb. capacity, has a dry chemical chamber of

(*Continued on page* 205)

*Chief Engineer, Fire Extinguisher Division, Ansul Chemical Company, Marinette, Wisconsin. Paper presented at the Twenty-Third Annual Fire Department Instructors' Conference, Memphis, Tenn., Jan. 9, 1951.



Chronological Development of Dry Chemical Hand Portable Fire Extinguishers. After 1935, Only Underwriters' Laboratories Labeled Extinguishers Are Included

I. A. F. C. DIRECTORS MAKE PLANS FOR CONFERENCE AT GRAND RAPIDS

Hold Annual Meeting in Houston, Tex., And Lay Out Activities for Current Year

THE annual meeting of the Board of Directors of the International Association of Fire Chiefs was held at the Shamrock Hotel, Houston, Tex., on February 5 to 7 inclusive.

The dates were set for the annual conference of the Association, to be held at the Municipal Auditorium in Grand Rapids, Mich., on August 14 to 17 inclusive.

The Hotel Pantlind will be the headquarters hotel, and it is connected by underpass with the Auditorium, where meetings and exhibits will be staged.

The Chairman of the Exhibit Committee, Chief L. C. Canning of Midvale, Utah, who did such an outstanding job at last year's conference in San Francisco, is already at work in preparing floor plans for the apparatus and equipment display.

The Directors of the Association, reiterating the stand taken last year, notified Chief Frank Burns of Grand Rapids, the host chief, that the host city is not to furnish the banquet to the members free of charge. Instead, each member will be required to pay for his own banquet ticket.

In addition, the Directors requested that the host chief do not solicit advertising from manufacturers of apparatus and equipment, who are already contributing heavily to the activities of the Association. These manufacturers, some of whom are sustaining members, already pay for exhibit space, advertising in the convention proceedings, and in other ways contribute to the welfare of the Association. However, the local convention committee, which is getting out the souvenir program, may solicit any fire apparatus and equipment representatives within the state.

This action was similar to that taken two years ago when the conference met at New Orleans, where the Board of Directors first laid down such restrictions.

Committee Reports

A number of committee reports were presented at the meeting, including:

Communications, Roi B. Woolley, Chairman

Arson, Fire Marshal George Clough, Chairman

Radiological Hazards, Mathew Braidech, Chairman

President's Advisory Committee, Fred B. Philbrick, Chairman

Committee on Fire Prevention, Jay W. Stevens, Chairman

Committee on Salaries, Chief William Fitzgerald, Chairman

Committee on Priorities, Fred Shepperd, Chairman

Special Committee on Duties of the General Manager and the Secretary-Treasurer, Chief Ray Tiller, Chairman

The Committee on Fire Prevention, under Chief Jay Stevens, has arranged a very elaborate program for a nation-wide fire prevention campaign. The cooperation of numerous national organizations has already been solicited, and in most cases has been promised. It is planned also, to solicit the cooperation of radio commentators and others on radio and television.

As a start towards this end, Mr. William Boyd (Hopalong Cassidy), who was in Houston at the time of the Directors' Meeting, was approached and readily agreed to incorporate in his program for youngsters a fire prevention message. Chief Stevens has been requested to prepare the script to be incorporated in Hopalong Cassidy's radio and television show.

In presenting the report of the Committee on Salaries, Chief Fitzgerald exhibited the scale of salaries of fire chiefs in cities of different population groups, and pointed out that many were far below average.

Representing the International Association of Fire Chiefs on the Advisory Committee to the Fire Service Division of the Federal Civil Defense Administration are President John Alderson and Fred Shepperd. Plans of the Fire Service Division were briefly reviewed.

The military status of fire department personnel was discussed fully, but in the absence of specific promises from Washington, no action could be taken.

The Latin-American Division of the Association was also discussed, and will probably be taken up at the next conference of the Association.

Those present at the Directors' Meeting included:

Officers: Chief John H. Alderson, President; Chief, Rudolph H. Swanson, First Vice-President; Chief G. R. McAlpine, Second Vice-President; Ex-Chief Daniel B. Tierney, Secretary-Treasurer; Chief William J. Cawker, Past President.

Directors: Ex-Chief Charles E. Clark, Wayne, Pa., Secretary, Eastern Division, and representing Mr. Herbert A. Friede, Director from the Eastern Division; Chief Frank H. Burns, Grand Rapids, Mich., Great Lakes Division; Chief Ray Tiller, Waterloo, Iowa, Missouri Valley Division; Chief Richard Salamone, Needham, Mass., New England Division; Chief William Meinheit, Berkeley, Cal., Pacific Coast Inter-Mountain Division; Chief J. N. Farmer, Petersburg, Va., Southeastern Division; Chief W. H. Short, Lethbridge, Alta., Dominion Division.

Others included James E. Jagger, General Manager, Jay W. Stevens, Executive Secretary; Fred Shepperd, Technical Consultant; I. H. Case, Chairman of Public Relations; and Chief L. C. Canning, Midvale, Utah, Chairman of Exhibits.

Presidents of Divisions who were present were Battalion Chief Emmet Byrne, Cleveland, Ohio, Great Lakes Division; Chief William Fitzgerald, Seattle, Wash., Pacific Coast Inter-Mountain Division.

Other secretaries of Divisions who were present were Chief Alfred H. Koltonski, Rutland, Vt., New England Division, and Dr. B. J. Barrodale, Houma, La., Southwest Division. Also present were Chief D. P. Rachal, Port Arthur, Tex., former President, Southwestern Association; Chief Robert Bogan, Baton Rouge, La., former President of the International Association of Fire Chiefs, Chief Charles A. Middlekauf, Houston, Tex., and Richard W. Joyner, Honorary Member, I. A. F. C.

Manufacturers' Representatives

Among the manufacturers' representatives who were on hand were Art Sullivan (and aides), American District Telegraph Company; Dan E. Lake, Mack Trucks, Inc.; Hugh Walker, American - LaFrance - Foamite Corporation; Joseph Green, Richard G. Joyner, Frank Tilley and Jonas Smith, Eureka Fire Hose Division, U. S. Rubber Company; Grace Clark, Circul-Air Corporation; Earl Scott, Scott Aviation Corporation.

The Cover Picture

The cover of this issue of FIRE ENGINEERING pictures a freak blast involving a truckload of oxygen and acetylene tanks, two miles south of Austin, Tex., on January 26th. The unusual photograph was made by a 20-year-old amateur photographer who came upon the scene by chance.

The truck, owned by an oxygen company, was stalled on the San Antonio highway by a rear flat tire, which ignited about 7:00 P.M. The fire spread to the truck and contents. The driver called warnings to motorists and others, including occupants of a grocery, who fled the scene just before the cargo "took off."

The explosion, which was seen and felt many miles, shattered the grocery store windows as well as those of a dwelling about 200 yards away. The truck was blown apart and several of the oxygen tanks were ruptured. A number of lesser explosions followed the major blast as individual tanks let go.

Two Austin fire companies answered the alarm sent in by the driver and extinguished the remaining blaze. Water was poured on the hot, still unexploded tanks for some time. Firemen stood by until 10:30 P.M. State police rerouted traffic.

Fire Chief R. H. Dickerson at Austin's Central Fire Station some miles distant, saw the explosion and said the station was swamped with phone calls after the blast.

Hoffman Heads Fire District Group

Chester H. Hoffman, president, Erie County Volunteer Firemen's Association, was elected president of the New York State Association of Fire Districts, February 5. Other officers elected were: Stephen P. Fox, New Hyde Park Fire Department, Suffolk Co., first vice-president; Raymond A. Griffin, Point Pleasant Fire Department, Monroe County, second vice-president; George Baist, St. Paul Boulevard Fire Department, Monroe County, secretary-treasurer.

Dramatic Rescues Mark Fatal Denver Athletic Club Fire

Four men died and fifteen guests and employes were hospitalized as a result of a blaze which swept the old section of the Denver Athletic Club shortly after 3:00 P.M. on Feb. 16, 1951. One fireman suffered a heart attack following the fire, but recovered.

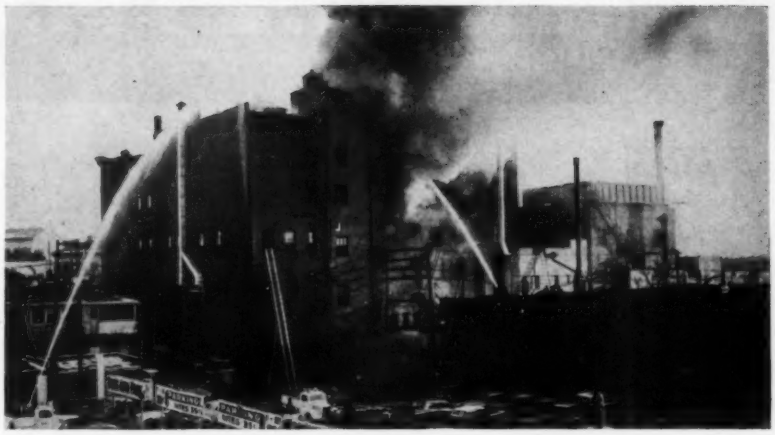
According to Fire Chief Allie Feldman, and Assistant Chief James L. Cain, the latter in charge of the department's fire prevention bureau, there was a lapse of eight minutes between the time the blaze broke out in the second-floor gymnasium of the old 5-story structure, and the turning in of the first alarm.

During the eight minutes, the fire gained sufficient headway to trap a number of guests and employes on the upper floors of the combustible structure. It is conceivable that this delay contributed materially to the loss of life.

According to the club head waiter, he tried to find the gymnasium fire extinguisher but it was hidden by draperies. "I ran down the hall and got another extinguisher," Chief Cain quotes the employe as saying, "but by that time it was too late, so I got out." Chief Cain said two wide doors in the Glen-arm place wall of the gym were open. A draft up the stairway fanned the blaze through these open doors, cutting off escape by that route. It is reported ventilators in the gymnasium ceiling were operating but it was not determined whether or not they opened into the attic or the roof. Firemen believe they opened into the attic and, if this was the case, the draft from the open door, pushed the flames up the ventilating system into the upper stories, which would account for the speed with which the blaze gained headway.

Fire fighters, directed by Chief Feldman, were handicapped by ice in the alley-way behind the structure and the presence of a large number of power wires, which interfered with laddering of the structure.

The rapid spread of the fire drove some guests to the rear windows of the upper floors where their only hope of escape was by fire ladders. Photographs of the attempt to rescue these victims are among the most dramatic fire scenes pictured in some time.



Rescue and Fire Control Operations at Rear of Denver A. C.

Picture shows some of the handicaps under which firemen labored to rescue trapped guests and employes of the 65-year-old Denver Athletic Club, which burned Feb. 17. Note crowded parking area, use of ground ladders in alley through which heavy wires run.

The multiple alarms brought a dozen pumpers and other fire department units into action and firemen carried lines into the building while other streams were operated from wagon pipes and deluge sets in the rear of the structure. Chief Feld reported that 2,500 tons of water were thrown into the building in the fire extinguishing operations.

Most of the rescues in the rear were effected by means of extension ground ladders, the lack of room for operations making the use of aerial ladders practically impossible.

Of the fifteen persons hospitalized as a result of the fire, only four were held over the week end. Two of these were club members, a third was an employe, all suffering from smoke inhalation; the fourth was Fireman Lark Loose who suffered the heart attack.

Damage caused by the blaze was estimated at $1,500,000.

The Denver area suffered its second fatal club fire less than 24 hours after the burning of the Denver Athletic Club when an early Sunday morning blaze razed the swank Wolhurst Saddle Club south of Littleton. The fire broke out about 5:30 A.M., soon after the last celebrants of a big Saturday night crowd had left the club. About 25 men and women, most of them employes, fled in their night clothes. Some had to jump from windows. Two employes of the 52-room club were trapped and burned to death. The loss was estimated at $1,000,000.

Detroit Alarms Up—Losses Down

The Annual Report of the Fire Prevention Division, Detroit Fire Department, for the year 1950, shows fire calls were 17,291, an increase of 121 over the year previous, while fire losses were $4,724,246, a decrease of $1,728,179 from 1949. There were 23 extra alarms. Forty-nine persons died as a result of fire, an increase of 11. Careless smoking accounted for 26 of these fire deaths. The report indicates a vast amount of work was done by the fire prevention staff and the public relations section of the division. Edward W. Hall is Fire Marshal.

Split Seconds Tick Off Life and Death at Denver A. C. Fire

This dramatic series shows Left: Two gym-clad members of the burning old D. A. C. in smoke framed windows at the rear while another more fortunate member has reached a fire escape landing and started down. At far right window, J. C. Wild, 70, waves his hat to attract attention. He was later found dead in room from which he is waving. The tip of an extension ladder is shown (right) behind the power lines, which handicapped firemen. Center: Just as the trapped club member is about to make a desperate effort to escape via the drain-pipe, the ladder tip reaches the window. Right: He starts the descent, as Mr. Wild, in window at right, collapses from smoke inhalation.

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Town Offices, Jail Burn as Fire Chief Is Inducted

Trouble struck Picher, Okla., January 16 last, when the Picher fire department, police station and city clerk's office were damaged by a blaze that destroyed the city jail—while the town's fire chief, Leroy Phillips, 25, was in Tulsa, 110 miles away to answer a military induction call.

The flames were controlled after the remaining four members of the department, and others from neighboring towns, battled it for four hours.

The jail's only prisoner, according to County Attorney James Reed, was removed to the county jail at Miami for questioning regarding the fire.

With Chief Phillips, was another fireman, Donald P. Collins, who volunteered for the Army.

IRVING JOHNSON

* * *

Boy Tries to Hide Straw Fire!

Give a small boy matches—or let him get at 'em—and some straw, and the result can be imagined. That's what happened when 5-year-old Gordon Eugene Kilgore of Washington, experimented with lucifers while hauling some straw in his toy wagon.

Frightened at the inevitable result, the lad pushed his wagon (and the fire) under a bed and beat it (fortunately for him).

The resultant blaze involved the bed, some curtains at a nearby window and brought firemen on the jump. The latter made short work of the fire—but as for Gordon, officers said he was too scared to talk at all. JACK JEBENS

* * *

Electric Blanket Fire Alerts Dentist

Dr. Albert A. McLaughlin, of Bridgeport, Conn., escaped injury early one morning recently, when, according to fire officials, the bed in which he was sleeping was ignited by an electric blanket.

The dentist said he was awakened by the heat from the blaze and he aroused his wife, also asleep in the room.

Assistant Fire Chief Percy Searles said flames feeding on the bedding in Dr. McLaughlin's bed spread to another bed. Firemen responded to an alarm from Box 215 at 5:31 a.m., and reported damage at $1,200. The blanket was ruined. TOM MAGNER

* * *

London Has Its Arsonists

After two unsuccessful attempts to set fire to the school in London, where he worked, Louis Walter Head, 36, a school caretaker, sent a note to the authorities saying, "Third time lucky."

He wasn't so lucky. Police traced him through the note, jugged him and he was sentenced to three years in jail.

Another London court sentenced a warehouseman, Robert Tucker, 22, to four years in jail after he admitted setting 36 fires in a period of seven months.

Tucker said he lit the fires because he "hated women." Police estimated his fires had caused more than $100,000 worth of damage.

Just Plain Stubborn!

In Newport, Ky., with the roof burning over his head, Charles Walters, about 50, refused to get out of his bed on February 9th last.

Deaf to all persuasion and argument, firemen finally had to pick up and remove him by the Armstrong method. His wife and 19-year-old son had already fled the fire (deponent saith not how long they pleaded with him).

When the fire was extinguished, Walters returned to his downy downy, although the ice had formed in his room.

Assistant Chief George McKernan observed: "He's just plain stubborn!" Other firemen had other names for it!

* * *

No Spartan Spirit in Spartanburg?

The Spartanburg city council and Spartanburg school officials reviewed the matter of a fire at a school between Greer and Spartanburg, outside the latter's city line, it is said, at which the Spartanburg firemen, according to reports did not respond to a call for help.

Fire Chief W. O. Blackwell declined comment pending a personal investigation. According to press reports, the fire February 9th last, did damage estimated at between $25,000 and $30,000 to the Florence Chapel negro school. Superintendent D. R. Hill of School District 5, in which the school is located, said the Spartanburg Fire Department did not respond. The Greer department, however, sent equipment and helped save two of the school's new classrooms.

* * *

Party Line Keeps Home Fires Burning

Ionia, Mich.—Donald Gregory's $1,500 barn was destroyed while Mrs. Gregory vainly tried to get a neighbor to give up the party line so she could call the fire department.

"I don't know which one of them it was," Gregory said. "But I'd certainly like to find out!"

* * *

Cypress, Calif.—John Ogle rushed to his party-line telephone to tell the fire department his house was burning.

"That's an old excuse to get a line," a neighbor snapped to him and kept on talking.

While Ogle ran to another ranch to use the telephone, his house burned down, leaving his family of five children homeless.

There oughta be a law!

Thanks, LARRY FEIHEL

* * *

A Plug for Firemen—That Can't Find One!

A pesky fire on a 40-foot telegraph pole posed a prob'em for St. Paul, Minn., firemen recently.

Seems there was no hydrant—"plug" to you—in the area near the pole, located at the foot of Sherman street near the Milwaukee R.R. tracks. Neither was there any static water supply. Nor was it possible to bring tank trucks near enough to the pole for effective fire fighting—as there weren't any streets!

Efforts to employ chemical streams proved futile, as they reached only about half way to the blaze. What to do! Then up came Assistant Chief William Conroy with an idea.

The chief sent a pumper on a roundabout, mile journey, to the top of a nearby 100-foot cliff, where there was a hydrant. Hookup to the hydrant was made, the line was dropped over the cliff and dragged to the base of the pole. Blooooie—the blaze was blotted out! What a head of water—and what a head on a fireman's shoulders!

Thanks, BROTHER DAVIDSON

* * *

Off the News Tape

Sabetha, Kansas, has a new fire truck. Plenty of chromium and enamel but there's a bit of tarnish on the fire department's efficiency rating. After the rig arrived officials discovered it was 14 inches too wide to pass through the fire station door. Pending door-widening, the new truck hides its effulgence in a commercial garage. . . . John Crozier, member Madison, Ind., No. 1 Volunteer Fire Department was fined $50 in city court and sentenced to 10 days in jail for turning in a false alarm on November 22 last. (Thanks A. C. W.). . . . Fire apparently caused by overheated stove January 19th destroyed the home of Pete Kelly just outside city limits of Clarkston, Wash. It was second loss of a residence just beyond the town line within a week. In both cases, city fire fighters were not permitted to fight the fires because of ruling limiting their activities to within town limits. A street department tank truck, manned by city employees however, is reported to have saved nearby buildings from the blaze. . . . Claremont, N. H., firemen were returning to their station after extinguishing a minor oil burner fire when they found that Eng. 1 in which they were riding, was on fire. The blaze, in a gasoline heater equipped with three safety devices to keep it from catching fire, it's related, was extinguished with CO_2 and booster line carried on the rig. . . . In Philadelphia, 126 patients, some of them helped by neighbors and passersby, were evacuated from the Philadelphia Protestant Home for the Aged December 7 as fire damaged the top floor of the 4-story structure. Eighteen bedfast patients had to be carried out. . . . Fire Chief William J. Connelly of Syracuse, N. Y., whose office is on the top floor of a 3-story building, wants an elevator. He wrote the mayor: "Fire personnel can use the sliding pole if necessary, but the public cannot and should not be expected to." . . . In Klamath Falls, Ore., L. C. Gilder turned on his faucet and got fire water. On New Year's too! This was both fire and water 'though Gilder explained it was from a new well he dug at his house. He said natural gas apparently rises from the 400-foot well. He gets flame by lighting a match close to the spout of water from his faucets. Spectacular, no doubt, but chancy. Gilder's face and arms were singed first time he demonstrated the phenom. Flames at that time shot out 5 feet, burned 30 minutes. Should think Gilder's a poor insurance risk! . . . A 5-foot length of telephone wire kept Chester Pazdiarko, 33, of Wilkes-Barre, Pa., in touch with the world since he was paralyzed in a mining accident 14 years ago. On January 24 he awoke to find the mattress of his bed ablaze. He reached for the telephone. Maybe he pulled too hard. The cord pulled loose and the telephone went dead. Pazdiarko died also. He was found seated on edge of his bed, his right hand grasping the receiver. Asphyxiation.

Manufacturers' Announcements

Noyce Sales Manager of Bean Fire Apparatus

Edwin J. Noyce, territory representative for John Bean High Pressure Fog Fire Fighters, has been named sales manager of the Fire Fighter Department, according to an announcement from Hubert L. Byrd, manager of the John Bean Division of Food Machinery and Chemical Corporation. Mr. Noyce replaces Roy G. Pulver who resigned from the position recently to accept a post with the Michigan Civil Defense Council.

John Bean Sales and Training Officials Discuss Plans for the High Pressure Fog Fire Fighter Following a Reorganization of Personnel at the Lansing, Michigan Factory. Left to Right: Edwin J. Noyce, Sales Manager; Walter D. Follette, Assistant Sales Manager; and Floyd Baker, in Charge of Training School

Mr. Noyce has been a member of the John Bean organization since 1946. Prior to this, he was a member of the Lansing (Michigan) Fire Department for eight years. He belongs to the Michigan State Firemen's Association, to the International Association of Fire Fighters, and to numerous sectional organizations of fire chiefs and firemen.

In the reorganization of the John Bean Fog Fire Fighter Department, Walter D. Follette has been named assistant sales manager and Floyd Baker, veteran fire chief from Highland Park, Michigan, will continue in charge of the John Bean Training School. Mr. Follette has been with the John Bean organization in sales promotion work for the past four years. He is a member of the Meridian Township Volunteer Fire Department.

Chapin Made Sales Manager of Aquadyne

The appointment of Farnsworth Chapin as Sales Manager of the Aquadyne Corporation, New York, manufacturer of wetting compounds for industry, was announced recently by Miner W. Allen, president.

Mr. Chapin's duties will keep him in constant personal touch with the representatives and distributors of Aquadyne throughout the United States. His technical and sales assistance in the engineering of "wet water" installations for dust control, product cleaning and fire fighting will thus be available to customers of the company, wherever located.

Up to the present time Mr. Chapin has been engaged in sales and management work in the plastics industry. He is a mechanical engineering graduate of Cornell University.

Expansion Announced by Quaker Rubber

A $1,500,000 expansion of plant and manufacturing facilities for Quaker Rubber Corporation, Philadelphia, a division of H. K. Porter Company, Inc., was announced recently by T. M. Evans, president.

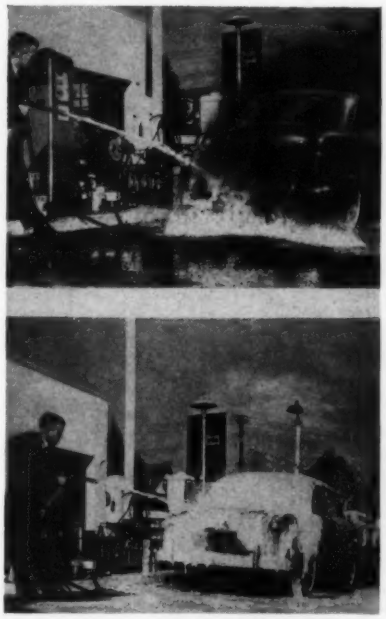
The expansion plan, which will be activated immediately, will increase the finished rubber products capacity of the plant by 30 per cent. Centered around a new compounding and mixing building, the expansion program includes a new administration building, a new $300,000 72-inch, double-deck, conveyor belt press. Approximately 70 per cent of the expenditure is earmarked for new equipment with the remainder going into new buildings.

National Introduces Foamster

The recently-introduced National Aer-O-Foamster provides protection against small flammable liquid fires. A product of National Foam System, Inc., the Foamster provides a means of obtaining substantial foam from a compact unit. It delivers a water stream as well as a foam stream.

The new Foamster is suitable for use in gasoline stations, bulk plants, refineries, loading rack installations, and any other place where mobility of fire protection equipment is important.

The Foamster is easily operated by one inexperienced person. It can be furnished for storage in freezing locations, ready for instant use.



Showing Use of Foamster on Gasoline Fire

The unit has several unusual features. The nozzle is made of polished brass, the grip of cast aluminum. This grip is attached to a sturdy metal can by a simple, easy-to-operate locking device, so that quick changeover to new containers is easily made.

An ingenious trigger valve on the Foamster permits immediate switching from water to foam, without shutting down the unit. This feature allows the operator to conserve foam while shifting position, and is an advantage over foam engines which have to be completely recharged after once being shut down.

The Foamster is less than 2 feet high, fits a 1-inch booster hose, weighs 26 pounds with charge. Depending on the pressure and type of foam liquid used, it will deliver up to 540 gallons of foam, has a range of up to 50 feet, will last up to 6 minutes.

W. B. Phillips Made President of Pyrene

Wallace B. Phillips has been elected president of Pyrene Manufacturing Company, Newark, N. J., manufacturers of fire extinguishers, air foam playpipes and systems, succeeding Edward J. Waring, who, retired in August, 1950.

W. B. Phillips

Mr. Phillips joined the Pyrene organization in 1913, as one of three associates who formed an agency to sell Pyrene fire extinguishers in Europe, Africa, and the Far East. In 1914, this agency was absorbed into The Pyrene Company, Limited, of England, then established, and of which Mr. Phillips was later chairman and managing director. In 1916 he incorporated Ets Phillips & Pain in Paris, which was followed a year or two later by Belgian and Spanish companies having similar titles. These companies presently manufacture a diversified line of Pyrene extinguishers and other products.

Mr. Phillips was born in New York City, and has maintained American citizenship during the forty years he has spent in other countries. In the First World War he served in a civilian capacity with the American Expeditionary Forces in France as Chief of Circulation G2.

On December 1, 1940, he was appointed Special Assistant to the Director of Naval Intelligence in Washington, and in December 1941 joined with Major General Donovan in starting the office of Coordinator of Information, which later became the Office of Strategic Services. He served as Director of Special Information Services for the O.S.S. both in Washington and in London.

New Carpenter 80-Hour Light

A new portable light for fire department, civilian defense and emergency forces is announced by Carpenter Manufacturing Company of Somerville, Mass. It is reported to provide 80 hours of continuous light on each battery charge.

(Continued on page 219)

FALSE ALARMS

"Take me to the maternity hospital," said the sweet young thing in the cab, "but no hurry, I'm only working there."

Two ardent disciples of Isaak Walton went fishing. After a while one said to the other: "Had any luck?"

"No," was the reply. "I can't get the cork out."

A Worthy Hope

Let's hope the Star Spangled Banner will never be illuminated by the Red rockets' glare.—*Pathfinder.*

"Are you Scotch by birth?"

"No. By absorption."

Mama pussy cat as she rescued her daughter from the violin factory: "I didn't raise my daughter to be fiddled with."

"Do you really like wearing an evening dress?"

"Yes, I feel nothing is more becoming to me."

"I don't doubt it, but wouldn't that be going too far?"

A stork is a bird with many things charged against it which should be blamed on a lark.

Margaret: "Don't you like my voice?"

Accompanist: "Madam, I've played on the white keys and I've played on the black keys, but why must you always sing in the cracks?"

"I Thought Something Was Wrong. Nobody's Yelled for Heat for an Hour!"

Marry my daughter? Young man you couldn't even keep her in underwear.

I've noticed, sir, that you don't do so good at it yourself.

"You Know I'd Never Forget Our Anniversary. It Falls on the Same Date as the Big Chicago Fire!"

Doomed

You fly through the air with the greatest of ease—
They find you next week in a couple of trees.
You travel by train on the solid good earth—
A large locomotive bursts into your berth.
You journey on foot and the papers remark,
"Pedestrian Run Over in So-and-So Park."
You stay home in bed in your safeguarded flat—
And what is more frequently fatal than that?

—*New York Times Magazine*

Income Tax: The fine for reckless thriving.

"I'se wants a ticket fo' Florence."

Ticket Agent (after ten minutes of weary thumbing through railroad guides):

"Where is Florence?"

"Settin' over there on de bench."

How about the Chinaman named Wong who shot his wife after she had presented him, in quick succession, first with two little Chinese babies and then with a white one. His defense: Two "Wongs" don't make a "Wight."

The relief applicant was being helped fill out his questionnaire by the clerk.

"And do you owe any back house rent?" she asked.

"Ma'am," he replied with dignity, "We've got modern plumbing!"

When it's a rough one...

Rough jobs call for tough men and tough equipment. Hose must have maximum pressure at the nozzle, must not writhe or serpentine. Such a hose is Eureka. Compare these four advantages—

BALANCED-WEAVE CONSTRUCTION, in both multiple-woven and double-jacket hose, eliminates dangerous writhing and twisting under high pressures.

SMOOTH-INTERIOR FILLER PLY prevents "washboarding" of rubber lining, reduces friction loss so that you get better nozzle pressure without increase in pump pressure.

MILDEW-PROOFING: Double-jacket hose can be furnished antiseptically treated or wax and gum treated to prevent mildew and rot.

BOMB-TESTED RUBBER LINING to guarantee longer wear.

EUREKA

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Cotton Rubber-Lined Fire Hose

195 Hudson Street • New York 13, N. Y.

Division of United States Rubber Company

YOU CAN TERMINATE OVER 50% OF ALL FIRE CALLS USING ONLY

OBERDORFER *Booster Pumps*

The records of many departments show over half of all calls satisfactorily terminated by Oberdorfer Bronze Rotary Gear Booster Pumps alone, with little or no fire or water loss. These pumps held many more of those calls in control the few minutes until heavy pumpers went into action. They provide water and pressure just as fast as a fireman can get to a fire.

For all their usefulness, Oberdorfer Booster Pumps are surprisingly inexpensive, from $72.50 for a 50 G.P.M. size to $190.00 for the 150 G.P.M. size illustrated.* We have been making bronze gear pumps since 1896, and their quality is attested by the hundreds of departments that have used them for years.

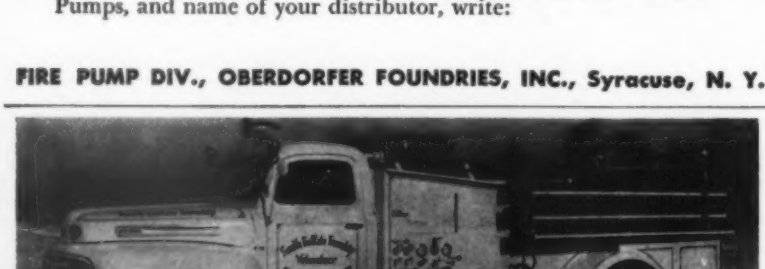
***Slightly higher west of the Rockies.**
Prices subject to change without notice.

PERFORMANCE DATA — No. 26 PUMP SHOWN ABOVE

Pump Shaft RPM	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
1600	120	500'-1½"	15'	150

For complete specifications of this and other Oberdorfer Booster Pumps, and name of your distributor, write:

FIRE PUMP DIV., OBERDORFER FOUNDRIES, INC., Syracuse, N. Y.



Central 500 GPM Equipment recently delivered to South Buffalo, Pa.

CENTRAL FIRE TRUCK CORP.
4437 Manchester Avenue, St. Louis 10, Missouri

Large Area Conflagration

(*Continued from page* 187)

inhabitants of a town see one after the other burn down they will try to save their furniture and other belongings by removing them into the open. The clogging of the streets by these objects forms a severe hindrance to traffic and the operations of the fire-forces. In the general turmoil, people cannot be made to listen to reason, and confusion—even panic cannot be prevented. Out of doors, the furniture is much more exposed to flying embers than in the houses; notwithstanding this fact, fires have very seldom developed in the streets because laymen, who failed when faced by only a small fire in the house, have often been seen to fight incipient fires in the street with considerable determination. As observations have shown, this behaviour seems to be characteristic of all civilians and should be taken into consideration when employing helpers in fighting catastrophical fires.

In such conflagrations, the high temperatures make brick and mortar so brittle that, when buildings or walls collapse, a very fine, hot dust is formed, filling the atmosphere in a wide compass around the fire. This dust causes inflammation of the eyes, so that firemen not wearing respiratory equipment may after a short time be compelled to leave the fireground. Every fireman should at least have a pair of dust-tight spectacles in his personal outfit; these should afford an unobstructed view as far as possible, and have no combustible parts (celluloid or the like).

Conclusions

What practical lessons can be learned from our above investigations? An opinion still frequently encountered in professional circles is that in the case of large-area conflagrations the best plan is to retreat to the next street to put up a line of defense. This view, however, must be considered as not tenable; the contrary is right. Efforts should be made to stop the fire *within* the burning block, at suitable buildings. A careful inspection of the district concerned will reveal the fact that they are by no means structurally homogeneous. Situated here and there throughout the quarter, buildings will be found that are suitable for use as re-doubts in the battle against the extending fire. Although the facades of the buildings may be very similar to each other in appearance, the fire-resisting qualities of the individual buildings, constructed at different periods, are not at all uniform. By classifying the single buildings with regard to these qualities and marking them correspondingly on a map of the town, it will be seen that, although, indeed, continuous lines of "strong" buildings do not exist, it is still possible to find lines consisting mainly of fire resistant structures, interrupted here and there by only small gaps formed by "weak" houses. Herewith reproduced is a photograph taken after the conflagration of San Francisco in 1906. In the center of the scene a row of buildings can clearly be discerned that would appear suitable for putting up a line of defense in a district otherwise hopelessly to be abandoned to the blaze. Maps showing the fire-resistance value of each individual building were prepared in Germany during the second world war and used to advantage. Such maps should be established in all those

cities in which districts of wood and framework structures exist. During the fire, smoke, darkness and the great extent of the area involved will make any survey impossible. Besides, if the map shows also the accessibility of the buildings, backyards, staircases, etc., it will facilitate the making of decisions as to the best use of forces and material.

Traffic a Problem

A description of a conflagration would be incomplete if no mention were made of the difficulties encountered in connection with movements and traffic. Under common conditions, the fire forces will reserve to themselves sufficient room for unobstructed operation by closing streets for traffic. In the case of a big catastrophe, however, this cannot be done. The evacuation of the population from imperiled districts, the dispatching of succor detachments to other firegrounds, and many other tasks related thereto will make it necessary to keep roads clear of hose lines and fire trucks. Unless hose lines can be stretched through streets where traffic is insignificant, they must be laid quite close to the curbs. At crossings hose bridges must be provided, strong enough to permit actual traffic passing over them. If water must be supplied from a considerable distance, it may be necessary that the course to be chosen for the hose lines be determined by the higher commanders of the operations.

Police forces should get a special training for the task of keeping free the highways leading to the city, within a wide circumference, in order to facilitate the approach of outside aiding forces; choking of the roads of access may have disastrous consequences.

In conclusion, we would touch upon the question of reserves. Evidently, reserves are required for manifold tasks. The population of a burning city, however, will muster up but little comprehension for forces standing by at the corners of the streets while the fire is raging. So it will be better to put every unit on the fireground into action, seeing to it that some units, operating at less important points, are binding only a small amount of equipment, so that quick changes of position are possible.

Keep Your Powder Dry

(*Continued from page* 196)

cast aluminum and an integral nozzle in the fill cap. Another type, in 20-lb. and 30-lb. capacities, is operated by inverting and bumping to puncture the cartridge, and is the only dry chemical extinguisher known to have been designed to operate in the inverted position up to that time. A third type, with outside cartridge, is operated by a trigger lever simultaneously releases carbon dioxide to pressurize the dry chemical chamber and opens a valve to release dry chemical into a hose leading to a horn-type nozzle.

In 1950 only three new extinguishers were brought out and no new manufacturers entered the dry chemical field. These three units included a 4-lb. dry chemical extinguisher and a new type in the dry chemical field, stored pressure units in 2½-lb. and 4-lb. capacities. The first mentioned 4-lb. unit is operated in the inverted position and is provided with a hose and shut-off nozzle. The stored pressure extinguishers are pressurized with nitrogen, not air, and have

Pyrene
REG. U.S. PAT. OFF.

THE MOST COMPLETE LINE OF AIR FOAM EQUIPMENT

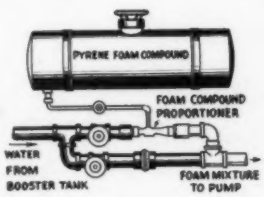
Everything from portable equipment to built-in systems for large storage tanks and other special hazards

Fire departments are converting to air foam because it is the most effective extinguishing agent for putting out large flammable liquid fires. It is also effective on ordinary combustibles. Its use is desirable where water supply is limited, because it gives 10 gallons of foam for every gallon of water available. It is simple and easy to use; requires a minimum of manpower and very little space; goes into action fast. Whatever your air foam requirements, Pyrene* has the equipment you need. Write for free Pyrene Air Foam catalog, a comprehensive, fully illustrated, 24-page foam manual. It's a basic reference work that belongs in your fire-fighting library.

PYRENE PORTABLE AIR FOAM PLAYPIPES

Playpipes are special hose nozzles that combine foam compound and air with water—automatically, and in the right amounts. They can be used wherever water under pressure flows at 20 gallons or more per minute. Available in five different sizes, producing from 200 to 1,600 gallons per minute. Foam compound may be fed to stream either from handy hip pack or directly from shipping container, or from tank on truck.

PYRENE AIR FOAM SYSTEMS FOR MOTOR FIRE APPARATUS



Can be installed by fire department's own repair shop on any fire engine carrying a supply of water. Require only addition of small foam compound tank, proportioner, and simple piping. Foam is discharged through playpipe. Speedy and easy to operate. May also be used with wetting agent by adding a wetting agent tank and selector valve to permit choice between foam compound or either 1 or 2 percent wetting agent.

*T.M. Reg. U.S. Pat. Off.

Pyrene AIR FOAM

Playpipes, suction side proportioners, forcing type foam makers, portable foam towers, motor fire apparatus systems, spreader tips, around-the-pump proportioners, auto induction systems, pressure line inductor systems, proportioning tank systems, in-line inductor systems.

PYRENE MANUFACTURING COMPANY

594 Belmont Avenue **Newark 8, New Jersey**

Affiliated with C-O-Two Fire Equipment Co.

We don't have to 'teach' our people how to use this extinguisher!

IT'S A RANDOLPH!

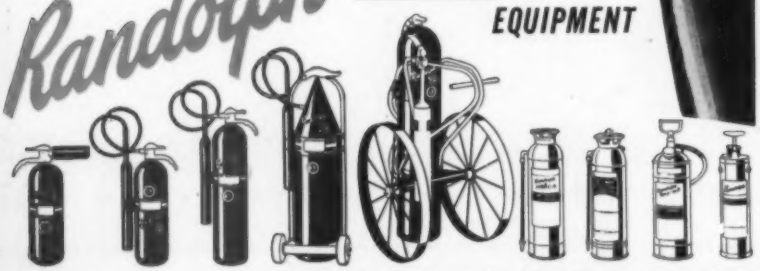
One glance tells you just how the Randolph operates—no instructions, no explanations necessary! That's why *anybody* can get a Randolph into action fast! No valves to turn, no nozzles to adjust; just point and press your thumb and Randolph's cloud of snowy CO_2 kills fire instantly!

Non-damaging Randolph CO_2 evaporates without a trace, is non-toxic, won't conduct electricity, deteriorate or freeze. And *all* Randolph Models are Underwriters' Approved.

A COMPLETE LINE OF EXTINGUISHERS AND AUTOMATIC SYSTEMS

Learn how Randolph gives your plant panic-proof, split-second protection against flammable liquid, electrical and other hard-to-handle fires! Write Randolph Laboratories, Inc., 19 E. Kinzie St., Chicago 11, Illinois.

Randolph SIMPLIFIED FIRE EQUIPMENT



nozzles in the fill cap at the top of the units.

The foregoing discussion of hand extinguishers included only Underwriters' Laboratories approved extinguishers.

In addition to the hand extinguishers, wheeled extinguishers are also available. Wheeled dry chemical extinguishers are pressurized by nitrogen from cylinders, the high pressure gas passing through regulating valves to reduce the pressure to about 200 lb. per sq. in. For some years wheeled dry chemical extinguishers in 150-lb. and 300-lb. capacities have been in use and in 1950 new 350-lb. and 150-lb. units were produced by manufacturers not previously in the dry chemical wheeled extinguisher field.

Other dry chemical fire equipment in use includes stationary units up to 2,000-lb. capacity and fire trucks up to 4,000-lb. capacity. As mentioned before, automatically operated dry chemical piped systems are now in use in a number of locations. The large stationary units are used primarily for the protection of petroleum properties and the dry chemical is distributed through pipe lines to hose houses. In most cases, 1-in. hose and nozzles which will expell dry chemical at a rate of 450-lb. per min. are provided with these large stationary units.

With regard to large automotive dry chemical equipment, the United States Air Force has two 4,000 lb. experimental crash fire fighting trucks now being tested in Alaska. A 4,000-lb. capacity dry chemical crash fire fighting truck is being constructed for the Canadian Air Force and a 3,000-lb. dry chemical capacity fire truck, for Uruguay. Each turret nozzle on the 4,000-lb. capacity dry chemical crash fire fighting truck will discharge 1,500-lb. of dry chemical per minute and usually each truck of this capacity is equipped with two turret nozzles.

One of the well recognized characteristics of dry chemical fire extinguishing equipment is its ability to very rapidly decrease the intensity of the fire. There have been many attempts made to explain the extinguishing action of dry chemical and work is at present being carried on to definitely determine why dry chemical is such an effective extinguishing agent. Sodium bicarbonate when exposed to heat will break down to release carbon dioxide and water vapor and in doing so absorbs heat. The present theories of extinguishment by dry chemical assign the extinguishing action to the release of carbon dioxide and water vapor in the flame area, the absorption of heat by the solid particles, or the absorption of heat in the chemical reaction taking place when the sodium bicarbonate is decomposed. Regardless of which of these three actions is the most important, it is very probable that the extinguishing effectiveness of dry chemical is primarily due to the chemical action take place directly in the flames, whether it be cooling or smothering action that actually extinguishes the fire.

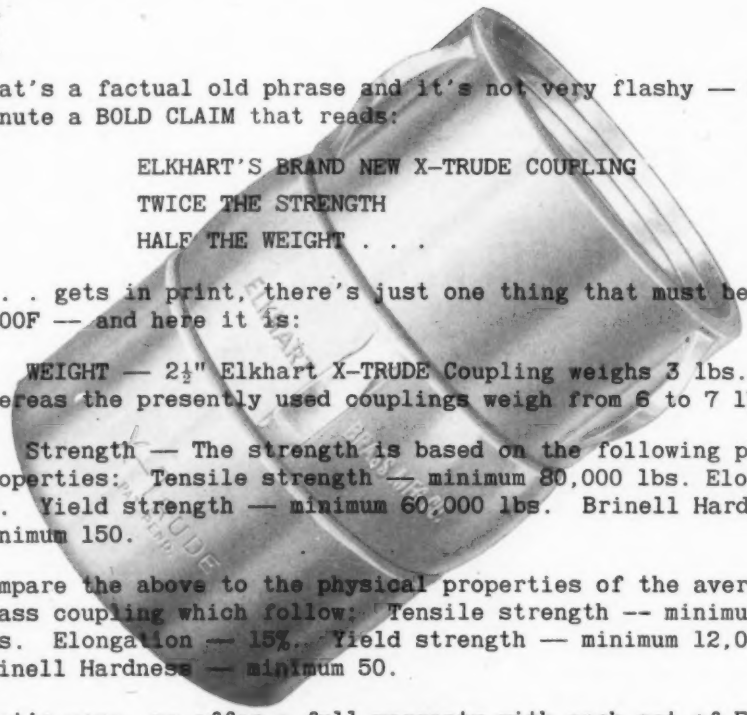
There is no question regarding the degree of effectiveness of dry chemical. The chart which compares the extinguishing effectiveness of various types of fire extinguishers on gasoline fires in steel-sided pans under standardized conditions, as determined by an approval agency, can now properly be shown before a group such as this because manufacturers of the other types of equipment are also manufacturing dry chemical fire extinguishers. It will be no-

It will help if you mention FIRE ENGINEERING *when writing advertisers*

ELKHART BRASS MFG. CO., INC.
ELKHART, INDIANA

EDWARD H. HANSEN
PRESIDENT

"FIGURES
DON'T
LIE"



That's a factual old phrase and it's not very flashy — BUT the minute a BOLD CLAIM that reads:

ELKHART'S BRAND NEW X-TRUDE COUPLING
TWICE THE STRENGTH
HALF THE WEIGHT . . .

. . . gets in print, there's just one thing that must be done: PROOF — and here it is:

1. WEIGHT — 2½" Elkhart X-TRUDE Coupling weighs 3 lbs. 5 oz., whereas the presently used couplings weigh from 6 to 7 lbs.

2. Strength — The strength is based on the following physical properties: Tensile strength — minimum 80,000 lbs. Elongation — 6%. Yield strength — minimum 60,000 lbs. Brinell Hardness — minimum 150.

Compare the above to the physical properties of the average cast brass coupling which follow: Tensile strength -- minimum 30,000 lbs. Elongation — 15%. Yield strength — minimum 12,000 lbs. Brinell Hardness — minimum 50.

What's more, we offer a full warranty with each set of Elkhart's X-Trude Coupling and fully guarantee this coupling to give equal service life to brass couplings in use today.

Plain facts — Plain figures . . . and they all add up to this future claim: This is the coupling that all fire departments will use eventually.

Compare! Specify.

Very truly yours,

ELKHART BRASS MFG. CO., INC.

E. H. Hansen

Edward H. Hansen, President

EHH:ja

ticed that a 4-lb. dry chemical fire extinguisher is rated as being more effective on this type of fire than a 2½-gal. foam extinguisher and that a 20-lb. dry chemical fire extinguisher is rated as being more effective than a 100-lb. wheeled carbon dioxide extinguisher. The 30-lb. dry chemical extinguisher is rated as being nearly as effective as a 38-gal. foam unit. Wherever flammable liquids and gases such as liquefied petroleum gas are handled, dry chemical fire extinguishers are very rapidly coming into increasing use.

Although dry chemical extinguishers are listed by the Underwriters' Laboratories as being suitable only for flammable liquid and electrical fires, they have also been found to be extremely valuable in preventing the flash spread of fire in textile mills because the dry chemical settles over lint and prevents flame spread. This property of dry chemical has also been utilized to protect cotton storage, wherever there is paper dust in paper mills, and even in plants manufacturing excelsior. However, in all cases where dry chemical extinguishers are provided for preventing the rapid spread of fire in Class A materials, they should be backed up by water type extinguishers or standpipe hose to extinguish deep-seated fires.

It will probably be noticed that throughout this discussion the term "dry chemical" was used entirely instead of the term "dry powder." The reason for this is that the approval laboratories, the National Fire Protection Association, and the National Board of Fire Underwriters all recognize the term "dry chemical" as applying to an extinguishing agent suitable for use on flammable liquid and electrical fires. On the other hand, the term "dry powder" is similarly recognized as being applicable to materials for use on metal fires only. There are now extinguishers available for expelling dry powder on metal fires, and there is a greater chance of confusion now than in the past unless the term "dry chemical" is used for the types of extinguishers discussed today.

MOBIL-DIRECTO SIREN

accepted and proved to be by far the

MOST POWERFUL AIR RAID SIREN

manufactured in the country today

Can be used as a mobile unit!

CIVIL DEFENSE DIRECTORS

ATTENTION!

Your responsibility is to protect human life.

"**REMEMBER**—The large casualties in Japan from the Atom Bomb resulted from failure to provide adequate air raid warning."—U. S. Army. **DON'T LET THIS HAPPEN TO YOU—**

Washington says—50% of possible casualties can be saved with proper equipment against inferior. Get **MOBIL-DIRECTO**, by far the most powerful siren in the world.

★ Approved and purchased by U. S. Army Signal Corps in World War II and tested by Nat'l Bureau of Standards.

CHECK THESE ADVANTAGES—

- **AUTOMATIC ROTATION**—a beam of sound rotating like a lighthouse beacon gives greatest coverage. Absolutely replaces 4 to 6 conventional type sirens of same horsepower—eliminates deadspots.
- **WIDEST COVERAGE at LOWER COST**—absolutely foolproof, most inexpensive siren on the market for the area covered. Tests by the city of Milwaukee show audibility up to a diameter of 12 miles and decibel rating of 126 to 130.
- **POWERED BY A 4-CYLINDER AIR-COOLED GASOLINE ENGINE**—guaranteeing consistent operation even under sabotage, electric power failures, or blackout conditions. Develops 25 H.P. Manufactured by one of the largest engine manufacturers in the world.
- **SIMPLE and EASY to OPERATE and INSTALL**—lightweight—no costly wiring or towers necessary for installation.

RUSH! PHONE, WIRE, OR WRITE FOR FULL INFORMATION TODAY

Designed by: **SYDNEY J. LATTOW**

Manufactured by: **BIERSACH & NIEDERMEYER**

1945 N. Hubbard Street, Milwaukee 12, Wis. Our 79th Year

Lansing Fire

(*Continued from page* 90)

called back into the structure in an effort to salvage valuable records. Fire Marshal Renner sent out requests to industrial and other concerns for all possible tarpaulins and covers to be used in protecting the contents below the fire floors. Even with this augmenting of the too-few covers possessed by the local fire department, it was impossible to protect much valuable material throughout the building.

At 9:30 p.m. that same evening, officers of the department reluctantly announced the seventh floor had been lost. Firemen were being driven downward floor by floor and little could be done to halt lateral development of the blaze on the M-floor. Steadily the fire worked to the south section of the building which, even before fire finally showed, was so hot that men working in relays could not endure it for any length of time.

In the struggle to get at the fire, hose lines were carried up through the building, and hauled up by lines on the outside. Where possible, streams were directed from windows of the main section at an angle across the court to the windows of the burning wing. Firemen even reportedly stood on window ledges in the effort to direct streams effectively. The water froze almost as fast as it fell on the outside of the structure, coating apparatus, ladders and hose, and firemen, alike.

Firefighters finally had to retreat to the fifth floor. By Friday morning the building was completely evacuated, and the fire fighting was almost entirely confined to street operations. Marshal Renner issued the order to clear the building before 5:00 a.m. on that day.

Friday morning, the firemen again renewed the interior fight. About 9:00 a.m. they penetrated the dense smoke to collide with the spreading fire head on. Working in relays, the men operated four 2½-inch lines in each of the wings. Much of the water, unfortunately, was ineffective in cooling down the advancing blaze. At approximately 9:15 a.m., Chief Decker reported the walls on the sixth and seventh floors, where the blaze was centering, showed signs of buckling, but although the area around the building in the immediate vicinity was cleared, and all apparatus that might be endangered was relocated, firemen still continued to wage their interior losing fight.

Shortly after noon the men were again ordered out "until later when a final assault may be mounted" as the press put it. An officer said "It's burning itself out." Soon after this, more equipment was ordered moved as the northwest cornice threatened to drop.

Throughout the fire men directing the ladder and tower streams against the upper part of the building found their streams unable to penetrate the

heavy glass windows of the structure. When rigs were pulled back from the building, the situation grew worse. Shortly after 1:00 p.m., fire fighters requested the state police to shoot out windows on the south wing so that they might get penetration from their ladder pipes. Accounts do not disclose the final outcome of this request.

All through the day the fight waged. At one time the report was erroneously given that firemen had put out the blaze. But it steadily ate on.

In the early afternoon of Friday, two John Bean Company special pumpers were summoned to the building to help dewater the basement of some 18 inches of water. The Bean Company, in addition, supplied high pressure apparatus from its factory and training school, which filled in at empty Lansing fire stations and responded to alarms received while the main fire force was engaged at the state office building blaze.

Friday night, apparatus from Jackson, Battle Creek, Flint and Grand Rapids, which had responded on emergency calls, stood by as city pumpers continued to pour water into the building from ladder pipes and derricks. Early on Saturday, the out-of-town apparatus returned to their own cities. About 11:00 p.m., an emergency meeting was called at fire headquarters by Chief Decker, following a survey of the weakened floors. Firemen, meanwhile, had been ordered not to operate in the areas where weakness had developed within the building. However, firemen did wet down smoldering records, etc., where it was possible to operate with any degree of safety.

After the conference, personnel was ordered back on the wrecked floors, taking hand lines with them, to complete the extinguishment on M-floor, in particular. With some fire still left in the wreckage, by 9:00 p.m. that night the men were so handicapped by darkness, smoke, fumes and cold that they were again ordered out.

On Sunday, the fourth straight day of the battle, the city's 163 fire fighters continued on the job. By this time workmen were attempting to shore up weakened floors and walls and the firemen were able to reach the still smoldering incipient fires. These continued to flare up even on Monday in ruined sections, as drying-out and damage repairs got under way.

Salvage operations, to "defrost" the building, restore the damaged diesel heating plant, and install emergency lighting, were pushed over the week end. During this time investigators were busy probing into the origin of the blaze and attempting to estimate damages.

Aiding Chief Decker and Waldo Peterson, Lansing deputy chief, in developing the fire fighting strategy, after Chief Fisher's forced withdrawal, were Captains Kopietz and Therria. With the help of the walkie talkies, a headquarter's office was maintained in the lower part of the building, and from here the fight was plotted and directed. Employes of the public service company, and other state divisions, were pressed into work to pick up and thaw out hose and equipment and to otherwise aid firemen later to help restore normal services in the wrecked building. The advice of experts from the Congressional Library, Washington, was secured on salvaging the valuable libraries.

Policemen, like the firemen worked overtime; one of their officers, Captain

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Lawrence Meehan of the state police was overcome by carbon monoxide, and Captain Babcock took over to direct details of police from the East Lansing Post, Battle Creek, Jackson, Reed City, Rockford and Flint.

State police set up the walkie-talkie station and relayed the messages from the fire area to the main floor control center. Messengers also were employed and the local telephone company supplied emergency service. At first, spectators were few, due to the frigid weather, but as the progress of the fire was broadcast, and the word got around, the number of sightseers increased and police details were kept busy re-routing traffic and herding crowds. Police ambulances were employed to remove the injured firemen, while police helped firemen to stretch hose and spread tarpaulins.

Canteens were set up in the main lobby of the state building by local service organizations. Volunteer workers distributed hot coffee, sandwiches and doughnuts to shivering firemen. Members of the Box 23 Association, the local fire department buff's organization, were in the van of these volunteers. The Salvation Army, Red Cross, and other groups all pitched in as the seriousness of the stubborn struggle became apparent.

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of February, 1951.

Month Ending February 28, 1951

Simcoe, Ont.—Red Star Inn destroyed.
Sudbury, Ont.—Granite Club destroyed. Cigarette.
Decatur, Ala.—Emporium, ladies' ready-to-wear store, destroyed.
Oxnard, Cal.—Whse. occupied by San Carlos Canning Co., Harbor Box & Lumber Co. and Marshall Anderson Vegetable Packing Co. heavily damaged.
Chicago, Ill.—Bldg. occupied by Globe Cabinet Co., TV and radio parts, damaged.
Chicago, Ill.—Bldg. occupied by Cascade Laundry damaged.
St. James, Minn.—Grain elevator damaged.
Greenville, N. C.—General offices of Carolina Sales Corp. destroyed.
La Moure, N. D.—Ribideau Loan and Insurance bldg., La Moure Drug Store and Freadhoff dept. store damaged.
Burlington, Ont.—Two large dwellings, Burlington Beach Road, destroyed.
Sidney, N. S.—St. Rita's Hospital, operated by Sisters of St. Martha, damaged.
Los Angeles, Cal.—Main Street gym destroyed. Defective wiring in attic.
Flint, Mich.—Dynaflow transmission plt., Buick Motor Div., General Motors Corp., damaged.
Baltimore, Md.—Plt. of Standard Cap & Molding Co. destroyed. Extended to row of dwellings on Bank street.
Gloversville, N. Y.—School of Our Lady of Mt. Carmel Roman Catholic Church, damaged.
Albion, N. Y.—Large barn, contents on John H. Moore and son's estate, three miles west in Canal Road, destroyed. Overheated switchbox.
Machias, N. Y.—Pierce Bros. Feed Mill destroyed. Overheated flue.
Greensboro, N. C.—Main plt. of Dixie Bedding Co. destroyed.
Los Angeles, Cal.—Jim Dandy Supermarket destroyed.
Santa Ana, Cal.—White Barn Auction Center, Highway 101 damaged.
Naugatuck, Conn.—Mercantile and tenement block, 933 Main Street, damaged.
Detroit, Mich.—Kasle Steel Corp. damaged.
Binghamton, N. Y.—New York State Electric & Gas Corp. plt. damaged.
Warwick, N. Y.—Elementary school destroyed. Spontaneous ignition.
Syracuse, N. Y.—Hotel Syracuse, also a dress shop, damaged. Clothes presser.

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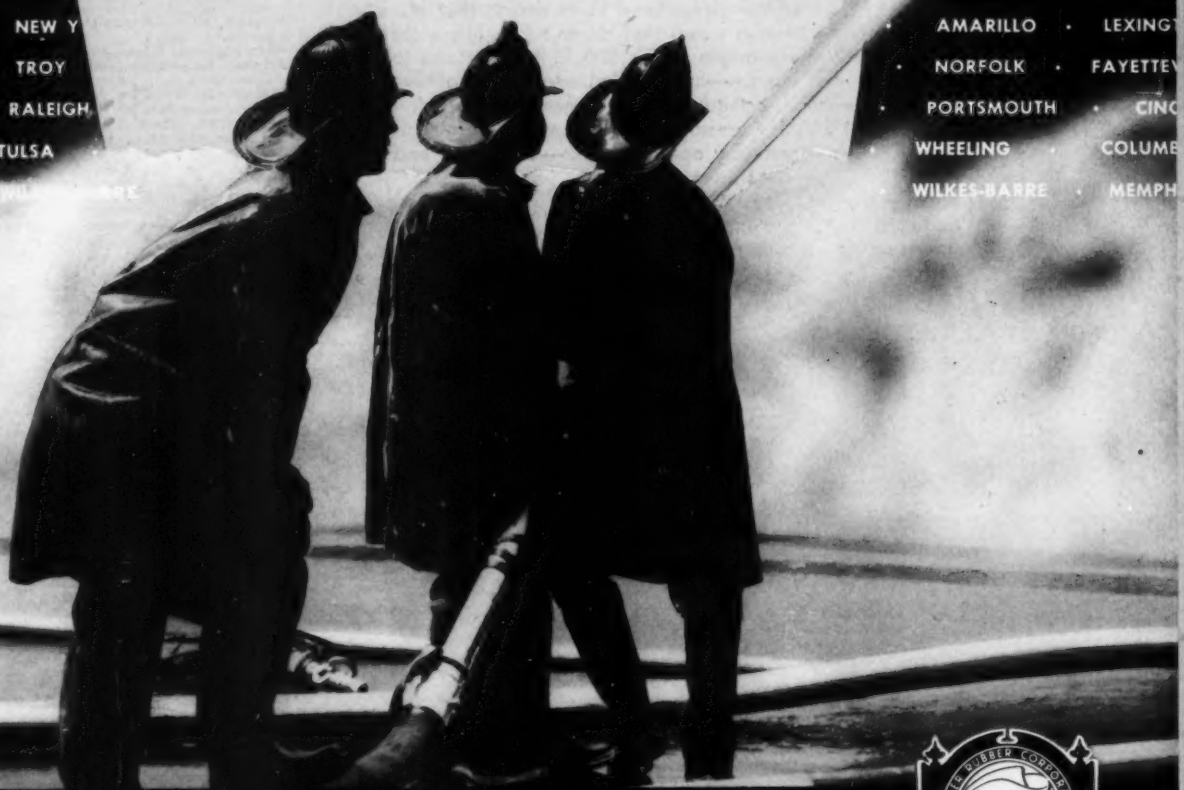

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The FZZ will supply, from draft, 60 U. S. Gallons per minute at 90 lbs. pump pressure; and 150 U. S. Gallons per minute at 30 lbs. It can supply two capable fire streams through 1½" lines, using tips up to ½". **NOTE:** Discharge adapter can be supplied for use with 2½" fire hose.

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Cleveland, Ohio—Dwelling of M. H. Lesh, Morseland Hills, destroyed.
Hoquiam, Wash.—McCleary Convalescent Home for the Aged, destroyed.
Huntsville, Ala.—Home Candy Co. destroyed.
Beverly Hills, Cal.—Supermarket destroyed.
Washington, D. C.—Mazsi Men's Store and Mandarin Restaurant, damaged. Explosion.
Clare, Mich.—Thursteon funeral home damaged.
Port Huron, Mich.—St. Clair county road commission garage damaged. Explosion of lantern.
Watervliet, Mich.—Plymouth Congregational church destroyed.
St. Paul, Minn.—Minnesota Mining & Mfg. Co. plt., and a varnish plt., destroyed. Explosion.
Ortonville, Minn.—Ortonville Hospital damaged.
Utica, N. Y.—Deerfield garage destroyed.
Waterboro, S. C.—Waterboro Ice plt. and meat storage bins destroyed.
Houston, Tex.—Storage tank, 1,000,000 gallons of gasoline along the Houston Ship Canal destroyed.
Huntsville, Ont.—Curling Club destroyed.
Kingston, Ont.—Toye Bldg., occupied by grocery business, coal company, Royal Canadian Horse Artillery club rooms, destroyed.
Whitby, Ont.—Plt. of General Mills and Lumber Co., destroyed.
L'Islet, Que.—Wood mfg. plt. of Nilus Leclerc destroyed.
Little Rock, Ark.—Hangar at Newport, Arkansas Municipal Airport and 13 airplanes, destroyed. Also Harwood Tractor Co. also destroyed.
Covina, Cal.—Citrus packing houses of Covina Valley Orange Co. and Golden West Orange Growers' Association, destroyed, including $15,000 worth of oranges. Two freight cars also destroyed.
Whitby, Ont.—Plt. of General Mills and Lumber Co. destroyed.
Crescent City, Fla.—High school bldg. destroyed.
Newton, Ia.—Cooper Coal & Concrete Co. bldg. destroyed.
Fall River, Mass.—Tenement bldg. and mercantiles 659 to 663 Bedford street, damaged. Tenement bldg. of Michael Camara, Desa Cobbler Shop, Morganstein Poultry Co., B & R Furniture Co. and Billie's Cafe, damaged.
South Ashburnham, Mass.—Colonial Crafts Mfg. Co. plt. damaged.
Lansing, Mich.—Michigan State Office Building destroyed.
Wheeler, Mich.—Huntoon's Studebaker Sales destroyed.
Holly Springs, Miss.—Five bldgs. damaged.
Arbyrd, Mo.—Arbyrd Elementary School bldg. destroyed.
Hudson, N. Y.—Five 2-story business and apt. bldgs. occupied by Concra Upholstery Co., Mischitelli Fruit Store and apts., Flax the Furrier and apts., and five garages rear of bldgs., destroyed.
Ottawa, Ont.—Apt. bldg. destroyed.
Smithers, B. C.—The garage of Wiggs O'Neill destroyed.
Vinton, Ia.—Bldg. occupied by Farmers Sales & Service Co. destroyed. Blow torch.
Binghamton, N. Y.—General store of Thomas Burns and Grange League Federation Store, Long Eddy, destroyed.
Mineola, L. I.—Business-apt. bldg. occupied by shoe store and apts., destroyed.
Rochester, N. Y.—Metzger & Home Dairy bldgs. destroyed.
Rochester, N. Y.—Eight bldgs. on East Main St. between State and Front Sts. near the Four Corners, housing 12 business places including a cafeteria, shoe store, drug store and jewelry shop on ground floors. Also eight small restaurants and other establishments on the first and second floors, damaged.
Knoxville, Tenn.—Bldg. occupied by Camel Mfg. Co. and Fairchild Engine & Aircraft Co. damaged.
Toronto, Ont.—Sherman Club Bldg. of Royal Canadian Armoured Corps, Camp Borden, destroyed.
Norwich, Conn.—Turner dept. store damaged. Caused by defective electric cord used by painters.
St. Jones, Mich.—Houghton Lumber & Grain Co. elevator, destroyed.
Melrose, Minn.—Litchfield Produce Co. plt. destroyed.
Minneapolis, Minn.—Miller Bag Co. destroyed.
Stover, Mo.—Stover high and grade school, Morgan County, destroyed.
Long Eddy, N. Y.—Armstrong General Store destroyed.
Marietta, Ohio—Plt. of Union Carbide & Carbon Corp. destroyed. Tank of benzene.
West Jefferson, Ohio—Service station destroyed. Caused by an automobile.
Portsmouth, Va.—Price's, Inc., radio repair shop, Gladstone Photographic Studios, Quality Shop, Barney's Men's Clothing Store, Margaret Duncan's Dancing School, damaged.
Bluefield, W. Va.—Cole Baking Co. plt. destroyed.
Goodwill, W. Va.—Dwelling of Harrison Dudley, Elvin Pikenton and Raymond Parks, destroyed.
Fyffe, Ala.—Elementary and junior high school destroyed. Defective flue.

San Francisco, Cal.—Daniel Webster Elementary School damaged. Arson by a young boy.

Augusta, Ga.—Wooden dormitory, housing 75 feeble-minded children, at Georgia Training School, Grecewood, destroyed.

Arlington Heights, Ill.—Atlantic & Pacific Super Market, damaged. Boiler explosion.

Martinsville, Ind.—New Highland Sanitarium and Pearcey & Sons furniture store destroyed.

Bellingham, Wash.—Columbia Valley Lumber Co. destroyed.

St. John, N. B.—Bldg. occupied by N. B. Zellers Ltd. store and stockrooms, destroyed.

Oxford, N. S.—Oxford High School destroyed.

Hamilton, Ont.—Minden's Ladies wear store damaged; also Wear & Wells Store, Holt Renfrew & Co. Ltd., Echolers Millinery.

Montreal, Que.—Peoples Church damaged.

Wheatland, Ia.—Wheatland grain elevator, destroyed.

Fredonia, Kans.—Excelsior brick plt. damaged.

Canton, Mo.—Business bldg. occupied by an implement company destroyed.

Atlantic Highlands, N. J. — Dwelling, Ocean Blvd., destroyed.

Depew, N. Y.—St. Augustine Church destroyed.

Syracuse, N. Y.—Business bldg., occupied by a tailor shop, barber shop, ice cream shop and large grocery, also a whse., damaged. Overheated pressing machine in tailor shop.

New Westminister, Ont.—Army & Navy Stores, Ltd., whse., destroyed.

Denver, Colo.—The three-story brick bldg. Wolhurst Saddle Club destroyed.

Indianapolis, Ind.—Pittsburgh Plate Glass Co. bldg. damaged. Arson.

Imlay City, Mich.—St. Paul's Lutheran Church destroyed. Overheated furnace.

Mt. Pleasant, Mich.—Isabella County Highway Dept. bldg. damaged.

Munising, Mich.—Beach Inn destroyed.

Clifton, N. J.—Clifton Lumber Co. yd. damaged.

Hickory, N. C.—The Hickory Springs Mfg. Co. destroyed.

Tishomingo, Okla.—The Tishomingo High School bldg. destroyed. Explosion.

Athens, Tenn.—McMinn County High School bldg. destroyed.

Stevenson, Wash.—Carson Lumber Co. destroyed.

Indianapolis, Ind.—The Schwartz Sectional System, mfrs. of prescription drug counters, destroyed.

Marion, Ind.—General Plastics Corp. and Eagle Lumber Dealers Supply Co. destroyed.

Peru, Ind.—D. & K. Fertilizer Co. plt. damaged.

Binghamton, N. Y.—Cancellation Shoe Co. store bldg., St. Dennis Fur Co. and Sission Bros., Welden Children's Clothing Shoppe, destroyed. Gas explosion.

Denver, Colo.—Frank M. Kenney Construction Co. damaged.

Peoria, Ill.—The Mecca Supper Club destroyed. Defective neon sign.

Plainfield, N. J.—Washington School damaged.

New Orleans, La.—Bldg. occupied by Phillips Clothing Store and Reiner's Jewelry & Loan Co., Sander's Dept. Store, damaged.

Sayreville, N. J.—Sayre-Fisher Brick Co. damaged.

Brewster, N. Y.—Three-story brick veneer bldg. housing an auto sales and service agency, a tavern and a second-floor leather mfg. firm on the main street, destroyed.

Livonia, N. Y.—Gambee block occupied by Raymond A. Fisher dry goods store, damaged.

Newark, Ohio—Two large barns on Licking County Home for Aged Persons, destroyed.

Large, Pa.—The block-long garage and terminal and 30 busses of the Noble J. Dick Bus Lines, destroyed.

Baltimore, Md.—Loft occupied by Vincent Upholstering Co. and John Dragunas wholesale tailor, destroyed.

South Acton, Mass.—South Acton Woolen Mill damaged.

Wenham, Mass.—Dwelling of Frederick M. Dearborn, Jr., damaged.

Batavia, N. Y.—Business district, apt. house, also Endicott-Johnson shoe store and Helen's Darling Shop, destroyed.

Marysville, Cal.—Yuba County Airport, private planes, destroyed.

Oakland, Cal.—Gaint Distributing Co. damaged. Prowlers smoking.

Lake Harbor, Fla.—Vegetable packing plt. destroyed.

Princeton, Fla.—Block long lime and avocado packing house destroyed.

Lewistown, Pa.—Bldg. occupied by Henry Hardware store and apts., damaged.

Columbia, S. C.—Service Club No. 1 destroyed.

Brookneal, Va.—Windstone plantation, estate of Patrick Henry, destroyed.

Sudbury, Ont.—Hotel Frontenac damaged. Cigarette butt.

Trenton, Ont.—St. Andrews Presbyterian Church damaged.

South Windsor, Conn.—Polar Brick Co. whse. bldg. occupied by bldg. material of South Windsor Bldg. Supply Co. and lumber of South Windsor Lumber Co., damaged.

Grand Rapids, Mich.—Kadow's White Truck Sales Co. garage and Golden & Boter Transfer Co. bldg., damaged. Welding torch.

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HOW SCOTT AIR-PAK SAVED THE DAY!
DREAD OF ALL FIREMEN IS FIRE AT AN OIL REFINERY, OR CHEMICAL PLANT.
LOOKS TOUGH JIM. WE'VE GOT TO GET IN THERE... AND FAST!
SCOTT AIR-PAKS ENABLE WET WATER FOG TO BE "DELIVERED" RIGHT ON THE BLAZE.
THOSE MEN ARE REALLY GETTING IN. THEY'RE KNOCKING IT DOWN ALREADY.
PROTECTED BY SCOTT AIR-PAKS, WORKING IN COMPARATIVE SAFETY, FIREMEN QUICKLY CONTROL AND EXTINGUISH WITH A MINIMUM LOSS.
BY GOLLY, THE COMBINATION OF WET WATER FOG AND AIR-PAKS SURE GOT RID OF THAT ONE IN A HURRY!

Supplying fresh, cool air — not oxygen, Scott *Air-Pak* provides complete breathing protection, even in petroleum atmospheres where the use of oxygen is an added hazard.

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Write today **for full details on the Scott Air-Pak in Bulletin No. 510.**

Scott Senior Sling Pak (above) — extra light and small, for short duration uses.

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Convention Dates

Mar. 19-21—ILLINOIS ASSOCIATION OF FIRE PROTECTION DISTRICTS. Annual meeting, Peoria, Ill. Executive Director, L. H. Glens, 537 South Fourth Street, Springfield, Ill.

March 21—FIRE CHIEFS EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. For information contact Chief John S. A. McAuliffe, Croton-on-Hudson, N. Y., President.

March 21—FIRE CHIEFS EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting. For information contact George B. French, Trumbull, Conn., Secretary.

Apr. 3-6—GREATER NEW YORK SAFETY COUNCIL. Annual meeting, Hotels Statler and Governor Clinton, New York City. Secretary, Cyril Ainsworth, Lincoln Building, 60 East 42nd Street, New York 17, N. Y.

April 18—FIRE CHIEFS EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. For information contact Chief John S. A. McAuliffe, Croton-on-Hudson, N. Y., President.

Apr. 19-20—GREAT LAKES DIVISION, INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, South Bend, Ind. Secretary-Treasurer, Chief C. A. Delaney, 1418 Warren Road, Lakewood 7, Ohio.

Apr. 20-27—ARSON INVESTIGATORS' SEMINAR. Annual meeting, Purdue University, Lafayette, Ind. For information, contact Francis Hartman, Department of Fireman Training, Public Safety Institute, Purdue University, Lafayette, Ind.

April 25—FIRE CHIEFS EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting. For information contact George B. French, Trumbull, Conn., Secretary.

Apr. 30-May 2—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual meeting, Fort Lauderdale, Fla. Secretary, E. J. Langley, Box 344, Florida State Hospital, Chattahoochee, Fla.

Apr. 30-May 3—NORTHWEST FIRE SCHOOL. Annual meeting, Saint Paul, Minn. Director, Leonard C. Lund, Deputy Commissioner, Insurance Division, Department of Commerce, State Office Building, Saint Paul 1, Minn.

May 16—FIRE CHIEFS EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. For information contact Chief John S. A. McAuliffe. Croton-on-Hudson, N. Y., President.

May 23—FIRE CHIEFS EMERGENCY PLAN OF FAIRFIELD COUNTY Annual meeting. For information contact George B. French, Trumbull, Conn. Secretary.

June 8-9—INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting. Bremen, Ind. Secretary-Treasurer, Robert D. Widmar, Bremen, Ind.

June 11-13—TENNESSEE FIREMEN'S ASSOCIATION. Annual meeting, Memphis, Tenn. Secretary, L. E. Potts, c/o Fire Department, Nashville, Tenn.

June 19-22—ILLINOIS FIRE COLLEGE. Annual meeting, University of Illinois, Champaign-Urbana, Ill. Secretary Illinois Firemen's Association, Chief Roy W. Alsip, Champaign, Ill.

June 19-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. Annual meeting, The Wentworth by-the-Sea, Portsmouth, N. H. Secretary-Treasurer, John W. O'Hearn, 22 Mt. Auburn Street, Watertown 72, Mass.

June 20—FIRE CHIEFS EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. For information contact Chief John S. A. McAuliffe, Croton-on-Hudson, President.

June 20-22—MARYLAND STATE FIREMEN'S ASSOCIATION. Annual meeting, Cumberland, Md. Secretary B. R. Benson, 303 Bosley Avenue, Towson 4, Md.

June 27—FIRE CHIEFS EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting. For information contact George B. French, Trumbull, Conn., Secretary.

June 25-27—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual meeting, St. Louis, Mo. Secretary-Treasurer, Chief Ray B. Tiller, 319 East 5th Street, Waterloo, Ia.

July 18—FIRE CHIEFS EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. For information contact Chief John S. A. McAuliffe, Croton-on-Hudson, N. Y., President.

July 23-27—WEST VIRGINIA STATE FIRE SCHOOL. Annual meeting, Morgantown, W. Va. Director, R. E. Hanna, Jr., Fire Service Extension Schools, School of Mines, West Virginia University, Morgantown, W. Va.

July 24-25—WESTERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Mount Morris, N. Y. Secretary, James H. Surridge, Industry, N. Y.

Aug. 6-10—PENNSYLVANIA FIRE SCHOOL. Annual meeting, Lewistown, Pa. For further information write Fire School, Public Service Institute, Department of Public Instruction, Harrisburg, Pa.

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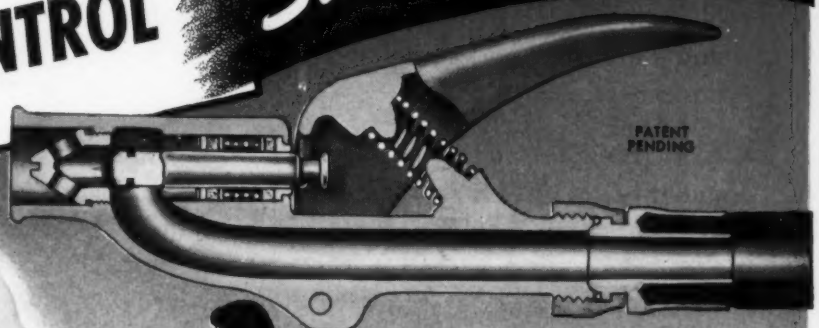

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- Designed for use by inexperienced operators.
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. . . because the **nozzle** on your ANSUL Dry Chemical Fire Extinguisher is **water-tight** . . . it **won't** become inoperative due to corrosion or caking of dry chemical within the working parts . . . the most inexperienced man in your plant **can use the ANSUL extinguisher effectively . . . *and only Ansul has a nozzle*** to meet all of these requirements!

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"PLUS-FIFTY" DRY CHEMICAL IS MORE DEPENDABLE *ALL-WAYS!*

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ANNOUNCEMENT

It has come to our attention that a few of our competitors are intimating that the U.S. Navy has taken over our entire production, and that we cannot continue to serve our customers.

It is true that the Navy ordered a great quantity of Bi-Lateral fire hose during World War II because of its patented improvements that helped conserve valuable space, but we are still in a position to furnish Bi-Lateral fire hose to Fire Departments and *we* will inform our customers if the time should come when we will be unable to serve them.

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Convention Dates

Aug. 14-17—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, Grand Rapids, Mich. Secretary-Treasurer, Chief Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Aug. 16-18—CONNECTICUT FIREMEN ASSOCIATION. Annual meeting, Stamford, Conn. Secretary-Treasurer, John J. Moehring, 56 Toms Road, Stamford, Conn.

Aug. 20-23—DOMINION ASSOCIATION OF FIRE CHIEFS. Annual meeting, London, Ont. Secretary-Treasurer, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Sept. 17-20 — INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Mark Hopkins Hotel, San Francisco, Cal. Secretary, Irvin Shulsinger, 11 West 42nd Street, New York 18, N. Y.

World Wide Fire News

By Roi B. Woolley

Civil Defense Closeups

LONDON—Britain's first comprehensive civil defense exercise since VJ-Day was held Feb. 11 in Bristol, where it was assumed that an atomic bomb had been dropped after 48 hours of rocket bombing and high explosive raids.

When the civilian forces were presumably overwhelmed by the simulated raid, the Army came to the rescue with 1500 troops.

Perhaps it was the snow and sleet, but although the exercise was regarded a successful demonstration of cooperation between Army and civil defense forces, the public showed little interest.

Hammer-and-Chisel Search, Best Sabotage Curb

The only two practical ways of protecting ports against sabotage, according to the director of Houston's port, is vigilance and "hammer-and-chisel inspection." Mr. W. F. Heavey, director, said Geiger counters cannot detect atomic bombs or other explosive. "The only way to prevent bombing sabotage," he said, "is constant vigilance and using the hammer and chisel to go through the inner hull plates and every piece of cargo."

U. S. and Dominion Civil Defense Set

United States and Canadian civil defense chiefs announced Feb. 11 they had reached an agreement on joint civil defense activities.

The statement, issued after a four-hour meeting, said agreements had been reached "on all points to insure complete cooperation on all matters regarding civil defense information, research, planning, organization and training." The announcement indicated that cooperation between the two countries will be carried out "as if there were no border."

I.A.F.C. Communications Committee Protests Bill

Following the recommendation of the Board of Directors of the I.A.F.C. at its Houston, Tex., meeting in February, the Committee on Communications, Chief Roi Woolley chairman, on Feb. 21st, formally protested the Bill known as S-537, introduced to the Senate by Senator Edward C. Johnson (D-Colo.), at the request of the Department of Defense.

The Bill, which is advocated by the

Defense authorities, and was pleaded for before the Senate Committee on Foreign and Interstate Commerce by Maj. Gen. Francis L. Ankenbrandt, director of Air Force communications, would give the President of the United States the power to control the use by any person and authorize the use by such departments or agencies of the United States as he (the President) may direct, "of any instrument, device, apparatus, or other thing capable of emitting electromagnetic radiation," to the extent that he (the President) deems necessary to minimize or prevent navigational aid to any foreign country in an attack upon this nation. In effect, the Bill would permit taking over, or shutting down all fire service and other emergency radio communications, including use of electronic smoke and fire detection and burglar devices and systems.

Claimed the Committee: the Bill is too broad; it is ill-conceived; it is doubtful if it could be enforced even if adopted; it ignores the needs of the fire service in controling and extinguishing peacetime as well as wartime fires; and even the Department of Defense appears confused over its implications and limitations. The Committee pointed out, as did others at the protest hearings, that the Federal Communications Committee already has authority to control the use of radio under Section 606 of the Communications Act, and that, with some amendments to this Act, the F.C.C. can accomplish what the Defense Department desires, without sacrificing vitally needed fire service radio.

An amendment to the Act to remove some of the far-reaching effects of the proposed legislation was submitted by Senator Johnson's Committee. General Ankenbrandt, when reminded that the Bill would permit complete control of all broadcasting, commercial, private, or emergency services, said that he was sure the Defense Department would not interfere with emergency service communications. This was not considered sufficient assurance by the many protestants, including the I.A.F.C.'s Committee.

It is considered doubtful if the Bill ever will pass the Senate in its present drastic form.

* * *

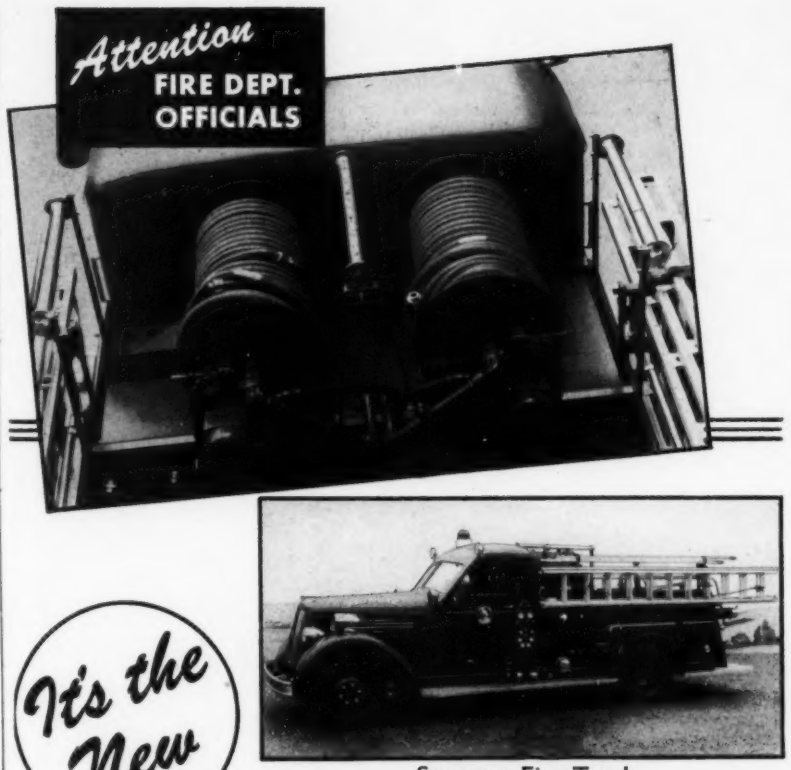
Owen Sound, Ont., Mayor Wants to Shift to Volunteer Department

Mayor E. C. Sargent of Owen Sound, Ontario, a city of 17,000 population, has proposed to replace the present 25 regular firemen with volunteers in the belief he could thus save half the city's present $60,000 annual fire protection bill. Deputy fire marshal J. E. Ritchie of the Ontario Fire Marshal's Office, however, suggests that the mayor had better check over his figures again as he could lose many times $30,000 in fire losses if the department was placed on a volunteer basis.—J. KARL LEE

* * *

Hot Off the News Ticker

Princeton University's cyclotron, destroyed by fire a year ago, is now in full operation. The year's rebuilding cost $250,000. The fire originated in oil in cooling coils surrounding copper electrical conductors in the machine. The rebuilt cyclotron has a water cooling system. . . . The private Diesel train of John J. McCloy, U. S. High Commissioner in Frankfort, Germany, was damaged severely by fire at Bad Homburg



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New models for fire trucks and airport crash trucks are especially designed with extra strong construction to withstand high pressures and the motor is protected against fog, foam, water and fumes. Developed to overcome the danger factors previously associated with electrical rewinds, the Hannay Reel has been PROVEN SAFE and efficient in exacting factory and field service tests. Explosion-proof, heavy duty motor with permanently lubricated bearings is Underwriters Approved Class 1, Group D, and is an integral part of the reel; needs no attention.

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- **Safe rewind speed, always under control.**
- **Smartly designed, compact, durable, dependable.**
- **Simplicity of construction and operation reduces maintenance costs to a minimum.**

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R.R. station causing an unfounded rumor that an attempt had been made on his life. Fire originated in ceiling of train's combination engine-kitchen. . . . Speaking of Diesel fires, a short circuit in a New York Central Diesel engine in the engine cut at 53rd St. between Eleventh and Twelfth Aves., Manhattan, caused damage of $10,000. Batt. Chief George Paige, of the 9th, said damage was confined to the engine. . . . The 5,800-ton Israeli freighter Meir Dizengoff reached St. George's Harbor, Bermuda, after an 18-hour fight by her crew to control a fire which broke out in her holds following an explosion. Heavy damage caused to the cargo of cork, chrome and ore. . . . Forty miners escaped safely when fire tore through the Pandora Coal Mine, near Sullivan, Ind. Rescue crews brought out 14 and 26 rode an elevator up the 210-foot shaft or scrambled up ventilator ducts. Crews fought the stubborn blaze in a vein of coal and supporting timbers almost a mile from the main shaft. . . . The Canadian Army posted security patrols around two armories on Jan. 2 while a court of inquiry started investigation of recent incidents that might have been sabotage. During New Year's weekend, someone broke into the University Ave. Armory and set two fires. . . . New York City staged its first air raid siren test Jan. 27th. It turned out to be a dud. About a fifth of 2,386 off-duty firemen who were directed to listen at their homes in the five boroughs reported they heard nothing. Of fixed sirens, 239 were in use, plus sirens on fire apparatus and police cars. Members attending meeting of the NFPA Apparatus Committee at Hotel Biltmore in heart of Manhattan heard nothing. City will add more sirens—meanwhile use of sirens on fire apparatus is prohibited in travel. . . . The fire department at Gyodo, near Tokyo, Japan, had its annual party Jan. 28 and all 11 members went to the hospital. At height of festivities, an alarm sounded. The firemen put down their sake cups and hopped aboard their truck. Rounding a sharp curve, it overturned injuring the entire crew. Firemen from nearby town, who were not partying, finally doused the fire. . . . Industrial Detroit and the vital Sault Ste. Marie locks will be attacked in mock atomic raids in mid-April, it is reported. The Soo Locks, critical artery of the Great Lakes will be "damaged." Two atom bombs hitting Detroit will presumably kill 127,000 persons, and injure 296,000 more so severely they will require immediate care. Somewhere the fire service will be in the picture, but just where is not reported. . . . Low bid of $166,000 was received for building a fire station at Whittier and $135,800 for one at Fort Richardson, Alaska, says government. Buildings will be three-stall, 97x78 feet concrete structures.

January Fire Losses

Fire losses in the United States during January were estimated at $68,686,000, it was announced by Lewis A. Vincent, general manager of the National Board of Fire Underwriters.

This is an increase of 16.8 per cent over losses of $58,823,000 recorded for January, 1950, and an increase of 0.2 per cent more than losses of $66,820,000 recorded for December, 1950.

These reported losses under fire insurance policies include an allowance for uninsured and unreported losses.

News of the Manufacturers

(*Continued from page* 201)

The new light is known as Type CDU and is powered by a heavy, rechargeable, long-life battery. It has a special 2-filament bulb providing 80 continuous hours of operation on a single filament, or a higher-power flood light for 20 consecutive hours on the second filament. Both filaments are controlled by a thumb operated 3-way toggle switch. A substitute reflector provides a powerful mile range searchlight when needed. The light has a shatterproof lens, is balanced and easily handled. The beam can be tilted instantly to any height by fingertip pressure. The case is of cast aluminum.

Putting Power Into the C. D. Alert

What with all the interest centering on the business of how best to alert citizens and civil defense forces in time of enemy attack or other serious emergency, the new "Mobil-Directo" Siren ought to receive widespread attention, particularly by the multitudes of fire departments that have been given the job of selecting and operating such warning equipment.

Outstanding features of this siren are (1) it is self-powered and requires no outside source of power supply. (2) It is rotating, its sound being beamed for greatest possible coverage, reportedly. (3) It has an output of 128 to 130 decibels, which is a lot of noise! (4) It is driven by an air cooled gasoline engine, which can be operated by remote or manual control.

According to the manufacturers, many of these "Mobil-Directo" sirens are already in operation in cities. Jersey City reportedly has purchased eight as its "basic system" of air raid alarm. Milwaukee has installed 11 to bolster its air raid warning system. The makers, Biersach & Nedermeyer Co., Milwaukee, Wis., also state their product has the approval of the U. S. Army Signal Corps.

Municipal Fire Administration

The fifth edition of the well-known volume entitled *Municipal Fire Administration* has just been published by the International City Managers' Association (1313 East 60th Street, Chicago 37). This new 498-page book represents a complete revision of the 1946 edition, the writing of the new edition being chiefly the work of Horatio Bond, chief engineer of the National Fire Protection Association and other members of the NFPA staff, with the assistance of Fire Chief John H. Alderson of Los Angeles and members of his staff.

The book includes chapters on fire defenses and insurance rates, department organization, personnel management, distribution of equipment and personnel, fire alarm signaling systems, the technique of fire fighting, fire prevention work, fire investigation and incendiarism, and records and measurement of results.

Since the first edition was published in 1936, this book has been widely used in fire departments, especially for training men at the supervisory level, and also by fire chiefs as a reference manual. Copies of the book are available from the publisher at $7.50 postpaid.

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. . . containing detailed descriptions of a complete line of equipment — transmitters, receivers, control consoles, accessories — for that most important part of your two-way radio system, the headquarters station.

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For Practical Discussion of Current Fire Department and Fire Management Problems

FIRE DEPARTMENT TRAFFIC PROBLEMS

THE discussion in this Round Table is a continuation of that which appeared in the January-February issues of FIRE ENGINEERING on fire department traffic problems.

The generous response from our readers made it necessary to carry the discussion over to this issue and to the April issue as well.

Readers are invited to send in their comments on this subject which is described in the box below, to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Question

R. E. Paré, Director, Fire Department, Montreal, Que.: When responding to a fire, fire apparatus has the right of way in all areas whether down one-way streets or against red lights. However, a fire department order strictly requires that extreme caution be observed when going the wrong way on one-way streets and that apparatus make a full stop at red lights and "stop" streets, proceeding only after observing carefully if the crossing can be safely made.

The rate of speed is not regulated. However, officers and chauffeurs alike are required by strict fire department orders to proceed at all times with extreme caution.

Chauffeurs are personally free from blame except on proof of deliberate and culpable negligence, in which case, they are liable to be suspended indefinitely from driving and under certain circumstances for costs of the damage.

We do not have fire lanes, however desirable they may be. A study is presently being made to determine which streets are to come under this category.

Although fire lanes do not exist here, I would imagine that such streets designated as such would permit parking on only one side or no parking at all.

Allie A. Feldman, Chief, Denver, Colo.: Denver Fire Department apparatus is given the right of way in heavy traffic areas, and in passing red lights and going down one-way streets against traffic. However, a department ruling allows travel on one-way streets not to exceed one block.

The regulation of speed upon responding to a fire is the company officer's responsibility. He alone determines the speed.

The Colorado Supreme Court has ruled that fire department apparatus when responding to a fire has the right of way and therefore is not responsible in case of accident. The driver is protected under this ruling.

We do not have fire lanes.

W. L. Lindner, Acting Chief, Cumberland, Md.: Fire apparatus is given the right of way in heavy traffic areas, in passing red lights and going down one-way streets against traffic as the shortest means of getting to the fire.

Rate of speed is not regulated, but the driver must have the apparatus under control at all times. The officer riding with the driver is responsible if he allows the driver to operate in a reckless manner.

The responsibility for the accident depends on how it happens. If it is caused by apparatus being driven in a reckless manner, then both driver and officer are reprimanded. The driver is insured by the city.

We do have fire lanes. Police officers give as much protection as possible when apparatus is responding to an alarm of fire.

Parking is restricted to one side in fire lanes.

Henry A. Dorband, Chief, Evanston, Ill.: Fire apparatus is given the right of way only through the courtesy of the citizen. It can pass red lights only when proceeding with caution. This is governed by state statute.

HERE IS THE TOPIC

1. **Is fire apparatus given the right of way in heavy traffic areas, in passing red lights and going down one-way streets against traffic as the shortest means of getting to the fire?**
2. **Is the rate of speed regulated upon going to a fire? If so, what speed?**
3. **Who is responsible in the event an accident does occur? How is the driver protected?**
4. **Do you have fire lanes and what protection do you get from the police department when responding to fires in these fire lanes?**
5. **Is parking restricted to one side on said fire lanes, or is parking permitted on both sides?**

Rate of speed is not regulated, but again caution is used depending on the amount of traffic and condition of the streets and weather.

In the event of an accident, state law prevails.

We do not have fire lanes.

Forrest B. Lucas, Chief, Dayton, Ohio: With the privilege of running red lights many fires are controlled in their incipient stages which otherwise might develop into major fires. All traffic lights in our congested district can be controlled by our dispatchers; there are twenty-two separate circuits or a master control, as you choose. In the event of a fire, where apparatus are to pass through this area the circuits controlling the lanes they follow are turned to "red" position. If the fire occurs within the congested district, all lights are turned to "red" position, thus stopping traffic in all directions. However, all our fire apparatus are equipped with two-way radios; therefore, as soon as the apparatus has cleared the area, same is reported by way of radio to dispatcher who in turn sets the traffic lights to normal operation.

Our rate of speed is the same as that which regulates other traffic.

State law protects the driver of the apparatus, unless negligence on the driver's part can be proved.

Moshe Rolf Hartmann, Master Mechanic, Tel-Aviv, Israel: There is at present no law in this country by which drivers are ordered to give right of way to fire apparatus. The drivers of our Brigade have to fight their way to the fire. We are allowed to drive through red lights, but when coming near an intersection with lights, we have to slow down to 30 Km. per hour. We are also allowed to drive against traffic in one-way streets, if we shorten by this the way to a fire.

We drive in town at about 60 Km. per hour and outside town at 80 to 95 Km. per hour.

The driver is protected by insurance. In case of accidents the brigade provides the lawyers.

We have no fire lanes here.

Zephrin F. Drouin, Chief, Lewiston, Maine: Lewiston fire apparatus is given the right of way in heavy traffic areas, in passing red lights and on going through one-way streets against traffic by sounding siren and bells.

The rate of speed is governed by the driver and officer in charge of apparatus, who generally sits opposite the driver. In other words the driver may go as fast as he can, but must take all necessary precautions in passing cross streets. Our drivers have been instructed not to take chances.

The City Controller and City Auditor has notified us that in the event of any accident involving fire apparatus, police or any other municipal vehicle, if the driver is found negligent he will have to bear the responsibility. In other cases wherein the driver is not at fault or where he is involved in an unavoidable accident, the city will assume responsibility by backing its driver.

We have fire lanes and at the present time we are confronted with a serious problem of traffic. Some 1200 to 1300 new cars have been registered during the past year. Sirens have been installed at prominent corners on said fire lanes. These are sounded

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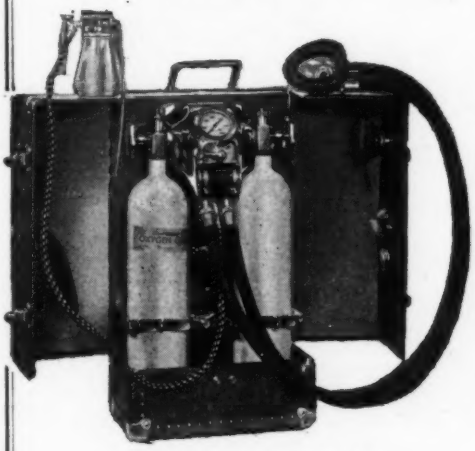
STEPHENSON RESUSCITATOR



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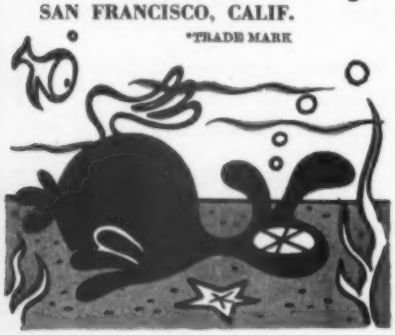

immediately upon the apparatus leaving the Central Fire Station. Motorists are to pull to the curb upon the sounding of the siren.

Our parking facilities have been a problem since the installation of parking meters. Our local police chief has made certain recommendations for restricting traffic and these have been turned down by the city fathers. At the time of this writing, the State Traffic Engineer is here making a survey of our traffic conditions. It is expected that the one-way street will be adopted to eliminate such traffic conditions in the business area.

At the present time, in some cases, parking is restricted to a certain area on fire lanes, although parking is permitted on both sides of the streets. The restriction on parking on fire lanes is at the corner for some 30 to 40 feet permitting the turning of our 75-foot aerial trucks onto fire lanes.

C. N. Penn, Chief, Dallas, Tex.: In the downtown area, right-of-way is secured for the fire apparatus making emergency runs by the dispatchers who have control of the traffic signal lights.

Drivers are instructed not to drive over the speed considered safe for the conditions prevailing at the time of the run. At no time are drivers to go more than forty miles an hour. Officers are held responsible for the observation of this regulation.

Accidents are reviewed by the city accident trial board.

This city does have fire lanes. Police aid by stopping traffic at intersections and by enforcing fire lane parking regulations.

Some lanes allow no parking at any time on either side of the street; other lanes designate only one side of street as a "No Parking" area.

J. K. Piercey, Chief, Salt Lake City, Utah: State law gives right of way but also places responsibility on driver of emergency equipment to use reasonable precautions.

The Salt Lake City Fire Department sets a maximum of 50 miles per hour responding to fire with men ordered to reduce speed whenever necessary to keep machine always under control and safe. All traffic laws must be obeyed returning from fires or on non-emergency runs.

The city protects all drivers of fire equipment with accident insurance. All accidents are investigated and responsibility placed by the police department. Both driver and officer are made responsible for correct and safe handling of apparatus by department rules.

We do not have fire lanes. Police department responds on fire calls, receiving the alarm dispatch simultaneously with the fire department by radio. They have been very cooperative and have proven of value in controlling traffic and clearing fire areas.

C. G. Burnett, Chief, Ottawa, Ont.: In my opinion, the shortest way to the grave rather to the fire is the allowing of fire apparatus to go against red lights or use one-way streets against traffic. Traffic conditions today do not permit fire apparatus to disregard the traffic rules. It is much better to arrive safely a minute or so later than to pile up on the road killing men and damaging equipment.

Speed limit in our city is 30 miles

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an hour and fire apparatus has no right of way other than the sound of the siren.

The driver and the officer in charge are responsible should an accident occur.

We have no fire lanes. The police department gives us every protection when sirens are sounded.

Parking is permitted on both sides of most all streets during certain hours.

Ira D. Leech, Chief, Decatur, Ill.: Fire apparatus is given the right of way in heavy traffic areas. The captain is in charge to see that the driver slows down the truck in coming up on the red light.

The speed is regulated by the traffic conditions in the downtown business areas. In driving in other sections of the city, we leave the speed to the discretion of the drivers, who I feel use good judgment.

None of our drivers has been held on any wreck. We do our utmost to instruct them in their duties, to slow down and to consider other people, regardless of having the right of way.

We have two fire lanes leading through the business section, which are very satisfactory. We receive splendid cooperation from the police.

Parking is permitted on both sides of the fire lanes, due to the fact that they are wide streets.

Walter L. Hydaker, Chief, Lima, Ohio: We are given the right of way through red lights by our traffic control at all times.

Our drivers are instructed to drive at a safe speed at all times, consistent with the traffic conditions. We do not exceed 45 miles per hour.

If no carelessness is involved, the City of Lima Fire Department is responsible and we have comprehensive insurance on all our apparatus. Driver is protected through our pension system; also by state workmen's compensation.

We have designated streets that are always used when on a fire run. Very little police protection is furnished this department and never on a run. We make our own right of way.

Parking is permitted on both sides of streets.

Albert Schneider, Chief, West New York, N. J.: Apparatus is given the right of way in responding to fires, but it must proceed with caution as traffic permits. We avoid going against one-way traffic as much as possible. Where traffic lights are not controlled by police headquarters, apparatus passes through red lights, slowing up and sounding siren and bell.

Apparatus must not go more than 25 miles per hour in responding to an alarm, and only 10 miles per hour in returning.

In the event of an accident the captain and driver are held responsible. The driver is protected by insurance, premiums being paid by municipality.

When a box alarm is received at police headquarters, a traffic signal switch is thrown, which will show red on traffic lights in all directions on congested business sections, thus halting all traffic. These lights are on for three minutes.

Parking is permitted on both sides in wide streets, and on one side only in narrow streets.

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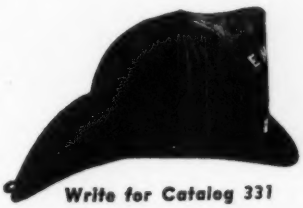

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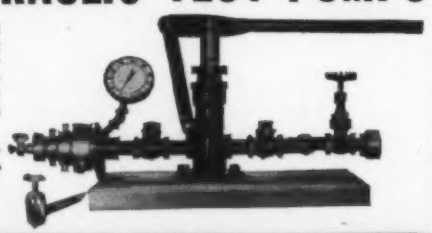

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Fire Service Ladders

(*Continued from page* 195)

tower, or an old abandoned building, or your fire station.

Practice getting under wires; moving from window to window on the same floor, and at different levels, lay hose lines for roof or upper floor use, as well as water tower practice.

Actually use the aerial as a water tower at least once a month.

This training will pay real dividends in developing capable and competent operators, and getting the most use without abuse of your aerial ladder.

Fire Conference Held at Worcester

An all-day fire fighting conference marked the third day of the annual Union Agricultural meeting in the Worcester, Mass., Municipal Auditorium, January 11.

The Union Agricultural meeting, an annual event for the past thirty-three years, is sponsored by the major agricultural organizations of the State with the Massachusetts Fire Chiefs Club collaborating.

The morning session was devoted to a talk with demonstrations by Haven S. McKrillis, head of the Lawrence Vocational School, on "Television and What the Fireman Should Know About It." The remainder of the morning was given over to a panel discussion on "The Strategy of Handling Farm Fires," directed by Percy Charnock of the New England Insurance Exchange. Slides of actual farm building fires were shown. Speakers in this discussion included Chiefs Davidson of Sudbury and Tuttle of Concord, both of whom have had considerable experience with this type of fire.

The afternoon session opened with a lecture on "Atomic Energy and the Fire Fighter," by Professor J. M. Bunker of the Massachusetts Institute of Technology. He was followed by Chief Henry Drake, Division of Safety, New York State; L. W. Eddy, Supervisor, Public Service Training, State of Connecticut and John L. Lusk of the Vocational Department, Massachusetts Department of Education, whose topic was "Outlines on Fire Training Methods." The session closed with the showing of a color sound film, "Outlawing Farm Fires." HENRY T. HANSON

Another Television Fire

Television really brought action "right into the living room" of Walter Milewski's home, 155 West Main Street, Milford, Conn., on February 9. And, it wasn't one those Western cowboy shooting pictures. Neither was it "Lights Out," or "Kukla, Fran and Ollie." Here's what happened:

The sun, shining through a portable magnifying "bubble" on Milewski's television set, caused a fire which resulted in damage of $100 to furnishings.

The "action," not listed for presentation in the day's newspaper, caused the family to become excited. A call was sent in for the Milford Fire Department, and three companies in command of Asst. Fire Chief Warren Burns, sped to the scene, doused the blaze, and advised Mr. Milewski to engage the services of a TV technician before tuning in any of the channels. TOM MAGNER

Questions and Answers

Relay Layout

To the Editor:

A line of 2½-inch hose 3,000 feet long equipped with a 1-inch tip is being stretched. The order has been given to hook up three engines in relay fashion.

Will you tell me how to arrive at the placement of the second and third engine?

Hydrant pressure is 60 pounds.

D. G. A.

Answer: In a relay layout, we neglect the hydrant pressure. It may drop if a hydrant is on a dead end line or if too many pumpers are working from the main.

Where three or four pumpers are to be used in a relay layout, they are usually spaced equal distances apart in the line. For example, if three pumpers are being used in a 3,000-foot line of 2½-inch hose, the first pumper will be placed at the hydrant; second pumper will be placed 1,000 feet from the first engine; third pumper will be placed 1,000 feet from the second pumper, and the line from the third pumper to the nozzle will be 1,000 feet.

If the last pumper is operating at 120 pounds pressure, then the nozzle pressure calculations will be as follows:

N. P. = E. P. ÷ (1.1 + KL), where 1.1 is a constant; K is a factor depending upon the nozzle and hose diameters, and L, the number of 50-foot lengths of hose in the line.

E. P. = 120
L = 20
K = .105

Then N. P. $= 120 \div (1.1 + .105 \times 20)$
$= 120 \div 3.2$
$= 37.5$ pounds

Discharge $= 29.7 \times 1 \times 1 \times \sqrt{37.5}$
$= 182$ gallons per minute approximately.

If engine pressure is 200 pounds, the nozzle pressure will be, by calculation similar to those above, 200 ÷ 3.2, or 62.5 pounds.

The discharge will be $28.7 \times 1 \times 1 \times \sqrt{62.5}$ = 235 gallons per minute approximately.

Fatalities in Fire Service

To the Editor:

I recently read that the Volunteer Fire Department of Texas City lost between forty-five and fifty members at the tragic explosion in that city.

Was this the greatest loss of life every sustained by an American Fire Department at a single fire? If not, which did result in the greatest loss of life? B. C.

Answer: The clipping stating that forty-five to fifty members of the (Texas City) fire department were killed in the recent Texas City blast is incorrect.

Actually, twenty-seven members of the Texas City Volunteer Fire Department, including the Chief, Assistant Chief and two Captains, were killed in the explosion of the French freighter Grandcamp.

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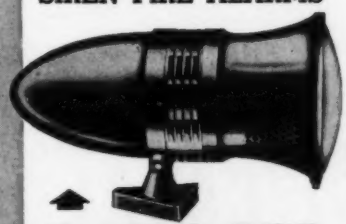

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At the same time, it is reported that twenty other 'volunteers' aiding the Texas City volunteer force were all killed. These men were members of the Republic Oil Fire Brigade who had hurried to the scene to aid their brother firemen.

Now as to whether or not this is the worst disaster to befall the fire service, our answer would be 'yes'—if we consider all branches of the fire service—paid, municipal firemen, as well as volunteers (in organized fire departments).

In the classification of paid fire departments, the explosion and fire in the Chicago stockyards, on December 22, 1910, was the worst in the history of the paid forces. Here, Chief Horan (termed Chief Fire Marshal) and Assistant Marshal Burroughs perished with twenty-two other officers and men.

On March 10, 1941, thirteen firemen were killed in the collapse of a theatre roof at the Strand Theatre fire, Brockton, Mass. This, we believe was the second worst calamity. At another fire, Chicago lost nine firemen, and at the Ritz Tower disaster in New York, eight firemen were killed.

"Hose" and "Engine" Companies

To the Editor:

I am a member of a "Hose Company." It has been so named for the sixty years. I am in favor of changing that name to an "Engine Company" since we are actually an engine company having a 750-gallon pumper. There is no other company in town called an engine company.

Would you give me the correct definition of a hose company or hose wagon and an engine company?

C. J. S.

Answer: Below we give our own interpretation of the definition of "hose company" and "engine company." These, like many other definitions in use in the fire service today, particularly the volunteer services, stem from the early days of the service when all fire departments were on a volunteer basis.

As you can easily determine by referring to the books describing those early days, there were both "hose companies" and "engine companies." The hose companies usually operated with two-wheel or a four-wheel cart which carried hose and, in some cases, buckets. The "engine companies" were largely restricted to units which operated pumpers of one kind or another. From these early designations came our present-day definitions of such units.

As the volunteer fire service grew and fire companies began to have numbers as well as names, it became the practice to combine the two. Some fire departments gradually dropped the original volunteer company's name such as "Hope Hose" and thereafter became known solely by number.

It is the general practice throughout the volunteer service to number the company units regardless of whether or not they continue to retain the original company name. Not only this, but it is the practice to number such units in sequence, viz: "Hope Hose Number 1," "Freedom Hose Number 2" and "Goodwill Hose Number 3." The same idea is followed in designating the engine

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companies, i.e., "Reliance Engine No. 1," "Volunteer Engine Number 2," etc.

Thus if you desire to retain the name "Tiger Hose" and yet include the designation "engine," you could either call the company unit "Tiger Engine and Hose Company No. 1" or drop the designation "hose" entirely and call the company either "Tiger Engine Company No. 1" or just simply "Engine Company No. 1."

From your letter the writer judges that your organization is no longer a "hose company," that is, you do not merely operate a hose truck or wagon, but on the contrary you have a complete, modern pumper unit. If this is the case, why should you continue the designation of "hose company?"

For your information, the term "hose wagon" is very little used in the fire service. In some cities where an engine company operates two units, that is, a pumper and a hose tender or truck, they may still refer to the second unit as a "hose wagon," but obviously, this is a misnomer. There still remains, also, the misuse of the term "truck"—the confusion arising from the designation of both hook and ladder and various other units of the fire department. Actually, efforts are being made in the fire service to revise the nomenclature and to do away with the old, out-of-date phrases and definitions. The tendency is to refer to hook and ladders as "ladder companies" and to designate the old "pumping engine" as either "pumpers," or "engine companies." Regardless of how the volunteer fire service tries to retain the ancient designations, the fact is that gradually these are being discarded, along with the old volunteer uniforms and other customs.

Persons in the News

Mendelssohn Reappointed Commissioner

Paxton Mendelssohn has completed his term is president of the Detroit Board of Fire Commissioners and has been re-appointed to the Board, as Commissioner. The post of president is progressively held by the Commissioners who are subject to appointment by the Mayor.

Commissioner Mendelssohn, whose interest in the fire service in general—and the Detroit Fire Department in particular is legion, recently presented the department with a complete overhaul and re-building of a fire department ambulance which he had previously given the force years ago.

Jeremiah McAuliffe New Chicago Fire Marshal

Jeremiah J. McAuliffe has been named chief fire marshal of the City of Chicago to succeed Anthony J. Mullaney, who, as announced recently, has been appointed assistant fire commissioner, following his retirement as chief fire marshal under age limitation law.

Thomas W. Powers, who has been 3rd division marshal, succeeded McAuliffe as 2nd deputy chief fire marshal. James E. Collins, who has been 1st division marshal became chief of the fire prevention bureau, succeeding John L. Fenn, who retired last fall.

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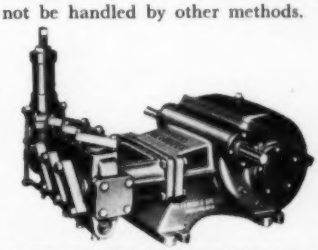

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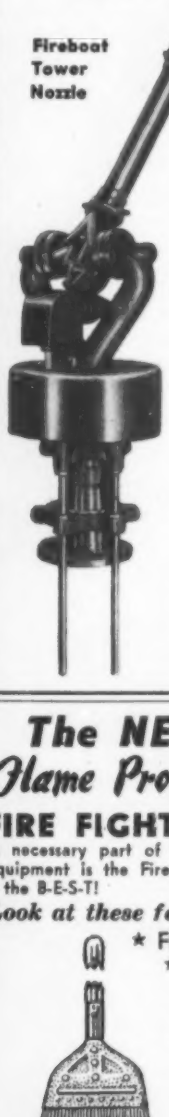

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The new active head of the Chicago Fire Department has had a long and honorable career in the force. He is a brother of Superintendent Frank McAuliffe, of the Chicago Fire Patrol.

Other changes announced include Burton A. Erickson, who has been promoted to division marshal from his former post as chief of the 1st battalion, and Neveille A. Conner, captain of engine company 17, who has been advanced to battalion chief and assigned to the 6th division. Marshal Erickson is assigned to headquarters.

Three division marshals, a battalion chief and a captain were transferred in connection with the promotions. Mayor Kennelly received in his office all those who were advanced and congratulated them.

New York Fire Commissioner Had Colorful Career

Fire Commissioner George P. Monaghan, newly appointed head of the New York City fire department, had a colorful background as farmer, road mender and teacher in up-state New York before achieving eminence in New York City as a lawyer and prosecutor. He was born June 10, 1901, on his father's 220-acre farm in Canandaigua, Ontario County, New York.

Fire Commissioner George P. Monaghan

After ten years of successful law practice, he was appointed by Governor Thomas E. Dewey, then District Attorney of New York County, as an Assistant District Attorney. This was on January 9, 1928. Mr. Monoghan was one of several Democrats named by District Attorney Dewey to his staff. Upon Mr. Dewey's inauguration as Chief Executive of New York State, Mr. Monaghan remained with the Governor's successor, District Attorney Frank S. Hogan, who named him First Assistant District Attorney of New York County. Mr. Monaghan resigned this post on December 27, 1950, when Mayor Vincent R. Impellitteri swore him in as head of the Fire Department of New York City.

In his first week in office, Mr. Monaghan, who had been making a survey of the Fire Department for some two months, reorganized it to give the

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people of the metropolis a more efficient firefighting force. In making this improvement, he had in mind a possible atomic attack on New York City by communist aggressors.

Fire Commissioner Monaghan spent his first school days in a one-room school in his native town, the typical red schoolhouse of American pioneering times and still a part of our countryside. After finishing six grades there, young Monaghan attended St. Mary's Parochial School for two years, which meant an 8-mile ride each day by horse and buggy.

After receiving his diploma from St. Mary's, he enrolled in the Canandaigua Academy, a public high school, where he won a scholarship to Hamilton College in Clinton, New York.

He was seventeen years old when he matriculated in Hamilton. The scholarship was not enough to carry him through his four years, and money from home was out of the question, for there was none to spare. So he waited on tables, tended furnaces and did other odd jobs. During his vacations, he worked with the road gangs in his home county, cutting brush along the highways, mending ditches and otherwise keeping the roads in shape. When his work on the roads was ended, he chored on the farm and worked in a cannery.

During his four years in Hamilton College he played baseball and basketball, and was manager of the basketball team in his senior year.

Upon receiving his degree of Bachelor of Arts in June, 1922 (he was among the first ten), young Monaghan worked on the farm and with the road gang until September, when he obtained a job teaching biology and physical training in the East Bloomfield High School, another Ontario County public school.

He came to New York in the fall of 1924 and began studying in Fordham University Law School. Again he had to work his way through. He earned some money supervising athletic activities in the public schools. He obtained additional funds by directing the activities of boys after school hours, instructing them in seasonal games and escorting them to museums and other educational institutions. Despite his extra-curricular work, young Monaghan was graduated from Fordham University Law School in June, 1927, at the head of his class, of which he was president.

His college days over, he returned to work on the farm in Canandaigua, where he remained until January 8, 1928, when he set out for New York City, where he was admitted to the bar on January 9.

He had had offers from several legal firms, and on the day of his admission to the bar, he joined the law firm of Blandy, Mooney & Shipman, at 38 Pine Street, remaining with them ten years when he resigned to be an Assistant District Attorney on Dewey's staff.

On August 2, 1941, he was married in the Catholic church of St. Mary of the Snows, Otter Lake, Oneida County, to Miss Helen A. Brady of Cooperstown, New York. She is also a lawyer. After earning her degree of Bachelor of Arts in Mount St. Vincent, she studied law at Fordham University Law School. Otter Lake was the scene of the wedding because the bride's parents had a summer home there.

Mr. and Mrs. Monaghan with their 4 children live at 160 Cabrini Boulevard, Manhattan.

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Charles W. Ringer, whose friends just celebrated his 90th birthday, is the epitome of git-up-and-git and of "hustle and drive." And although he's retired as head of the Minneapolis Fire Department these many years, he's still full of the stuff that made him one of the outstanding fire chiefs of his day.

Charles Ringer began his colorful fire career with entry into the department in 1884. Incidentally, he enjoys the distinction of being born on a New Year's Day —and of having a son who was likewise born on a New Year's!

His rise through the ranks to chief was not meteoric, but it was made in the face of a lifetime "inferiority complex" as his friends put it. His career as chief, however, had its hectic moments, such as the time he tangled with politics—to come out the victor.

And all the time the chief was plugging for improvement. He didn't like the smoke hazard faced by his men and officers, and so he and his mechanic, Herbert Penny, came up with the smoke ejector, which later was to prove its worth on many an occasion. He hated to see the horses go, but he recognized the fact that they were outmoded by the motor truck.

Always colorful, he became a national figure as the president of the International Association of Fire Chiefs in 1922.

A nation's fire service pays homage to Charles W. Ringer on his 90th year of busy life, and wishes him at least a century of continued "hustle and bustle."

Zeh Fifty Years a Fireman

Fire Chief John H. Zeh, for 14 years head of the Jefferson, Wis., Fire Department, recently celebrated a half century as a fireman.

When he joined the Jefferson Fire Department in 1901, the first chief he served under was his father, Casper Zeh. At that time the department had two fire companies, a hose cart, two hand-drawn hose carts, a coal cart and horse drawn steamer.

John Zeh saw the first motor truck introduced, in 1922, a new ladder truck in 1928; since then the department has added pumpers in 1931 and 1940 and a high pressure fog unit in 1940. In 1947 the hose and ladder companies merged into one unit. There are now 40 volunteers on the roster.

In addition to his job as fire chief, Zeh is deputy marshal of the Industrial Commission and fire inspector.

Priest Now Fire Chief

The Northern Wayne Fire Company, Rock Lake, Penn., has the distinction of having as its Fire Chief a full fledged clergyman. He is Rev. Francis Merkle, a former curate at St. Mary's Church, Scranton, Penn., and now, when not fighting fire, pastor of St. Juliana's Church, Rock Lake.

The pastor-chief was an Army Chaplain during World War II and saw service in the Philippines.

The members of the company, which was organized only about a year ago, have completed a course in firemanship under State Fire Instructor James Oakey of Dickson City. The unit was recently admitted to the Northeastern Pennsylvania Firemen's Association.

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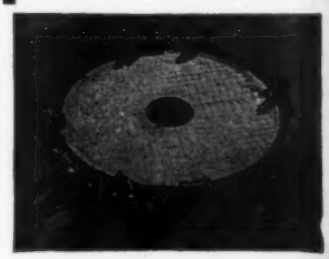

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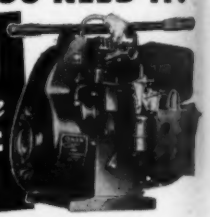

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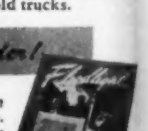

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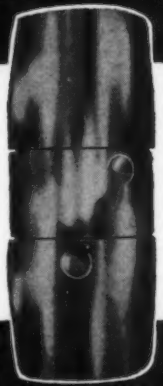

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Changes in Toronto Department

Albert Steen was appointed to the post of Chief of the Toronto, Ontario, Fire Department on January 1, 1951, after acting in that capacity for about two years. His appointment culminated 46 years of service, during which period he was made lieutenant Jan. 1, 1914; promoted to captain Oct. 1, 1922; to district chief Oct. 1, 1935; assistant deputy July 1, 1944; deputy chief on July 23, 1947 and he took on the duties of chief, July 13, 1950.

Chief Albert Steen

Chief Steen, whose ability as a fire fighter has gained him the respect of everyone in the department, served on the executive committee of the Toronto Fire Fighters' Association from 1918 to 1925. He held the position of vice-president in 1925. He has been prominent in the deliberations of the Dominion Association of Fire Chiefs.

The new chief is a family man who enjoys outdoor life and vacationing in the highland of Ontario. In his younger days has was a baseball star and he still retains his fondness for the game. Another hobby is carpentry work, at which he is adept.

Another important change in the Toronto Fire Department is marked by the appointment of Joseph Waterman to deputy chief. Deputy Chief Waterman began his career as a fireman in Fire Station No. 8 over 45 years ago. Since then he has risen steadily through the ranks. In June, 1917, he was made lieutenant. He became captain in 1927, district chief in 1936, assistant deputy chief in 1946 and deputy chief July 23, 1947.

JOHN KARL LEE

New Chief at Fair Lawn, N. J.

Arch W. Brown, former Deputy Chief of the Fair Lawn, New Jersey, Fire Department, took office as Chief on January 1st, 1951. Installed along with Brown was Cornelius De Ritter, who is the new Deputy Chief.

Brown has risen to Chief after only six years in the department. As a member of Fire Company No. 2 he served as Lieutenant and Captain, and as Deputy Chief of the department in 1950.

De Ritter has been a member of the department for the past 15 years. He served as Captain of Fire Company No. 1 for three years before being elected Deputy Chief.

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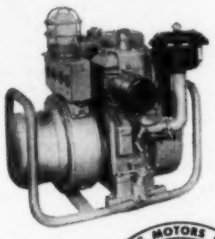

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Obituaries

Chief Edward Croker Dies at 87

Characterized as New York City's "most rambunctious, colorful and courageous fire fighter," Edward F. Croker is dead. His stormy career in the New York Fire Department really began with his appointment as chief in 1899, the year after the five boroughs were consolidated. It continued until 1911, when he retired, still as chief. In those twelve years as head of the world's largest department, the fiery Croker was very much in the limelight.

Chief Croker, nephew of the notorious Richard Croker, head of Tammany Hall, a native of White Plains, N. Y., was a New York Central brakeman in 1884 when his uncle got him a job as a rookie fireman. The relationship did his career no harm, and in less than two months he was a lieutenant. By 1886 he was a captain, by 1893 a battalion chief, and by 1898, a deputy chief. In 1899 he was made acting chief and a few months later the appointment, despite Civil Service Commission opposition, was made permanent.

Although politics got him his job, Chief Croker eschewed politics in fire fighting and devoted himself unswervingly to his department's betterment and the job of fire-extinguishment and prevention. He loved his work—and his department.

He had a deep-seated hatred of publicity. For this reason, although he died February 7 at a nursing home in Lindenhurst, L. I., and was cremated the following day, it was a week later before the news of his death became known.

The burly chief never missed an alarm from the 190 posts along Broadway. In his Locomobile, reported the first motor car used by a municipal fire chief, he set new records of response, to the delight of citizens and "buffs" and the dismay of truckers and trolley motormen. He often reached the scene of a fire before the first apparatus and when this happened explanations were in order.

On responding, his first act was to get to as near the heart of a fire as he could. He would bellow praise, criticism and instructions to his firemen. Throughout the fire's duration he was on the jump. It was said when a wall began to fall he advanced to it rather than from it. Once, when told that a roof was unsafe, Croker without hesitation ran across it. As it fell behind him, he called back to his informant, "you were right!"

Under his command, the department started changing from horse-drawn to motor vehicles; the fire alarm telegraph system was reorganized; high pressure pumping stations in lower Manhattan were installed, and the Fire College was founded. On his orders the blowing of whistles on apparatus returning from a fire was curtailed as was the unnecessary breaking of glass at fires. An innovation, growing out of the near death of several of his men at a night fire, was the searchlight engine, the first of its kind. It was a converted steamer.

During his tenure as chief, he waged numerous wars with politicians and the heads of the city's government. In 1902, he was removed as chief, but in 1904 he was reinstated following court action.

After his retirement from the department, he was for many years president of the Croker National Fire Protection Engineering Company with headquarters in New York. He was the author of the book, "Fire Protection," and numerous short articles on fire control and prevention.

Chief J. A. Guizado Dead

Juan Antonio Guizado, Director General of Fire Departments, Republic of Panama, is being mourned by his nation, following his death in January, after a lingering illness. He would have been 84 years old in February. He helped found the Panama Fire Department and served it for 64 years, the last 38 as its Chief.

An executive degree of official mourning was signed by President Arnulfo Arias following his death. The chief executive with other members of the official Government family, marched in the impressive funeral procession. The Chief's casket was carried on one of the Panama Fire Department's pieces of apparatus, ten of which were in the cortege, together with a unit from the Balboa Fire Station. Delegations from all over the country, representatives of the Panama Canal Fire Division, and members of the 536th Engineers Fire Fighting Platoon of Fort Clayton participated.

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Chief Guizado retired from active service because of ill health a year ago, following his election as Inspector General. He was succeeded in active command by Comandante Raul Arango N. His first government position was bureau chief of the ministry of government of the Department of Panama (1894-1900), and later he was chief of the ministry of war.

He was appointed head of the fire department in 1912 and in 1932 was drafted to become chief of the national police force. He later reassumed his duties as chief of the department, which he held until last year.

Chief Guizado assisted in organizing fire-fighting forces in several Latin American Republics and he was highly honored by their governments. In addition to his native tongue he also spoke English, French and Italian.

D. M. Slaughter Dead

Daniel M. Slaughter, former state fire marshal of Alabama and a special agent in the Arson Department of the National Board of Fire Underwriters, died February 13th in New Orleans, La. He had been ill for two weeks.

Mr. Slaughter, who was 70, served as special arson agent in the state of Louisiana for the last 20 years with the exception of two years in which he was assigned to North Carolina.

Chief Harry L. Waugh of Fulton Dead

Fire Chief Harry L. Waugh, 77, one of New York State's oldest fire fighters, is dead after a short illness. He was named head of the permanent Fulton, N. Y., Fire Department when Fulton became a city in 1902. He saw the department motorized, and he was responsible for numerous improvements in methods and equipment. Chief Waugh was also fire marshal. He was a member of the New York State Association of Fire Chiefs, and other organizations.

J. R. Jackson

Chief Troy of Paterson Dead

Fire Chief James J. Troy, head of the Paterson, N. J., Fire Department since 1946, died of a heart attack Jan. 10th, aged 61. He was taken ill while on duty and went home, where he became worse. An inhalator was dispatched to his home and oxygen administered, even while he was being taken to the hospital by ambulance, but he succumbed shortly after arriving.

An able and progressive executive, Chief Troy was appointed to the department in July, 1916, and assigned to Engine 5 at Fire Headquarters. He served in France in World War I, after taking leave of the department, and in 1919 returned to duty with the same company. He was promoted to captain in June, 1921, and for 18 years commanded Ladder 1 and Engine Companies 2, 10 and 11. He was made battalion chief in March, 1938, deputy chief four years later, and on Sept. 1, 1946, he succeeded former Chief Thomas L. Coyle as head of the department.

Chief Troy instituted numerous innovations during his tenure, including appointment of a drillmaster, the adoption of modern equipment, including water fog, and improved records keeping.

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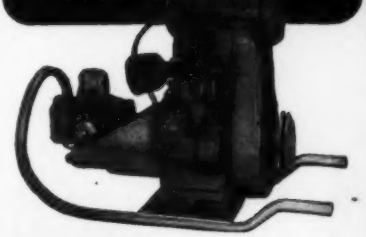

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*Temperature below which foam liquid viscosity increases so that pick-up rate is too low.

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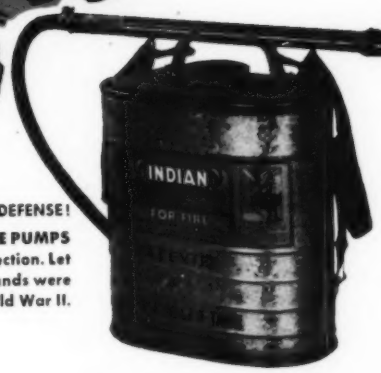

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